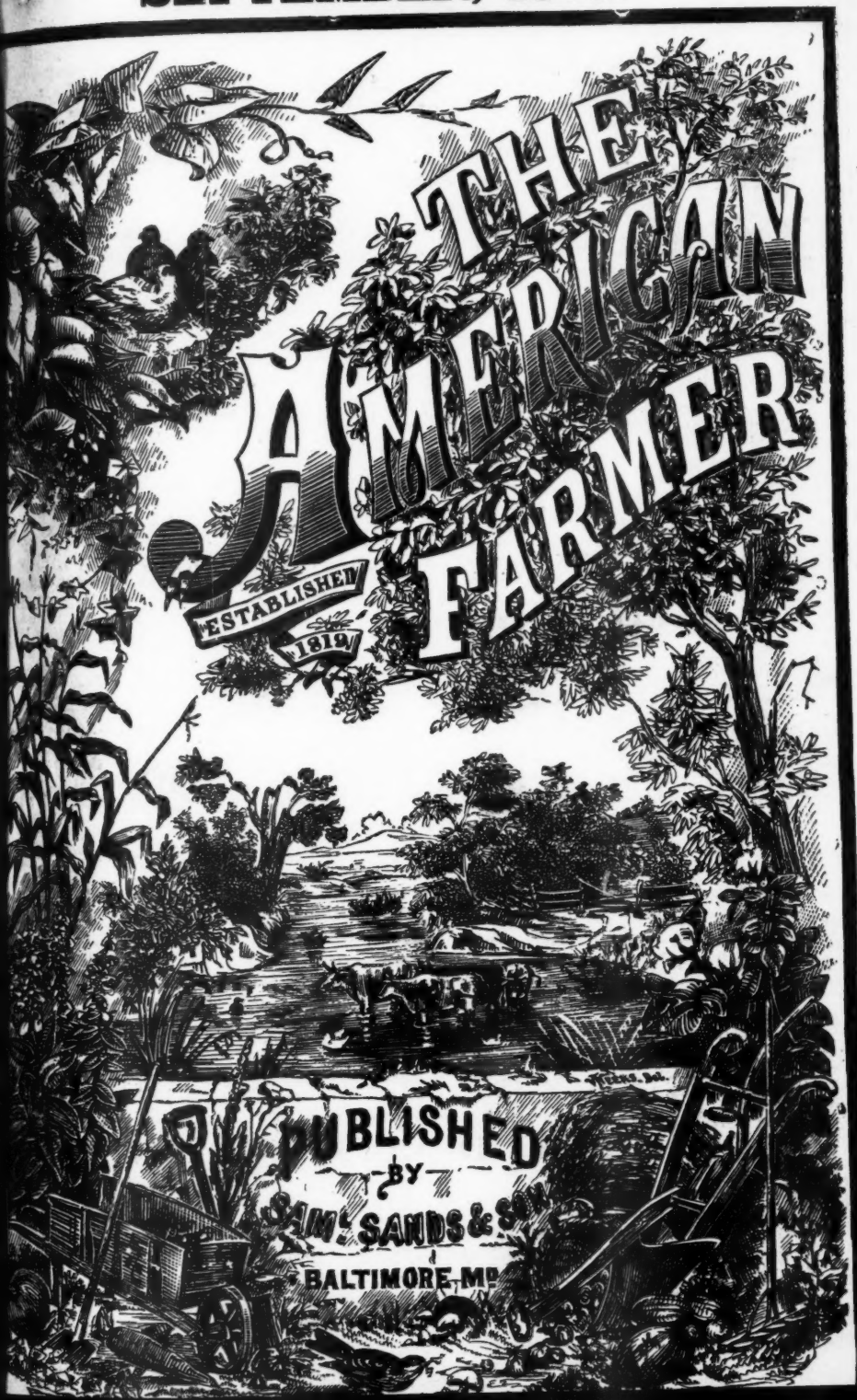
SEPTEMBER, 1876.



TO FARMERS AND GARDENERS.

$1,000 REWARD TO ANY ONE that can find by analysis or otherwise any adulteration whatever in our manufacture of Bone.

No heavy Bones taken out for Bone Black, or other purposes.

The First Manufacturer in America that sold GROUND BONES by WEIGHT.

PURE BONE DUST AND

BONE MEAL

from Slaughter-house Bones, twenty-five years the standard for purity and excellence.

CHEMICAL LABORATORY OF P. B. WILSON, No. 32 SECOND STREET, BALTIMORE, July 30, 1872.

Joshua Horner, Jr.—Dear Sir: The following is the result of analysis of a sample of your Bone Dust drawn by myself from a lot of seven tons lying in your warehouse:

Moisture, (deter. at 212° F.)	3.74 per cent.
Organic Matter	40.12 per cent.
Containing—Nitrogen, 4.08; Ammonia 4.95	
Inorganic Matter	56.14 per cent.
Containing Phosphoric Acid	24.52 per cent.
Containing Bone Phosphate of Lime	53.52 per cent.
Insoluble Matter	2 51 per cent.

This is the BEST SAMPLE OF BONE DUST I CAN FIND IN THE MARKET, and call your especial attention to the LARGE PERCENTAGES OF VALUABLE MATERIAL for the improvement of the soil, and to the SMALL PERCENTAGES of moisture and insoluble matter

Respectfully, etc., P. B. WILSON, *Analytical and Consulting Chemist.*

PREPARED FOR DRILLING, AND PACKED IN BAGS, 167 LBS. EACH, AT $42 PER TON. DISSOLVED OR VITRIOLIZED BONE, $43 PER TON. BONE ASH, GROUND AND DISSOLVED, $42 AND $48 PER TON. FARMERS' SUPPLIES.

JOSHUA HORNER, JR. & CO.

54 S. Gay Street, 178 Forrest Street and Corner Chew and Stirling Streets, BALTIMORE, MD.

Sands' Farmers and Planters' Agency.

Offering as heretofore to purchase and ship for our friends

All Kinds of Fertilizers, &c.

we also call attention to our facilities for the selection and forwarding of Every Description of

Agricultural Implements and Machinery,
Portable Steam Engines and Boilers,
Saw and Grist Mills, &c.,
Wagons, Carriages, Buggies, &c.

Likewise

FRUIT AND ORNAMENTAL TREES, SHRUBS AND PLANTS; FIELD, GARDEN AND FLOWER SEEDS.

ALL KINDS OF FARM SUPPLIES.

We also offer to select and have shipped

IMPROVED LIVE STOCK,

CATTLE, HORSES, SHEEP, SWINE and POULTRY. In this Department we buy only from breeders of established reputation of the several kinds, and cannot undertake to procure ordinary farm stock, such as draft horses, milch cows, &c In this vicinity great attention is paid to some particular breeds of stock, and specimens can be had here which are nowhere to be surpassed.

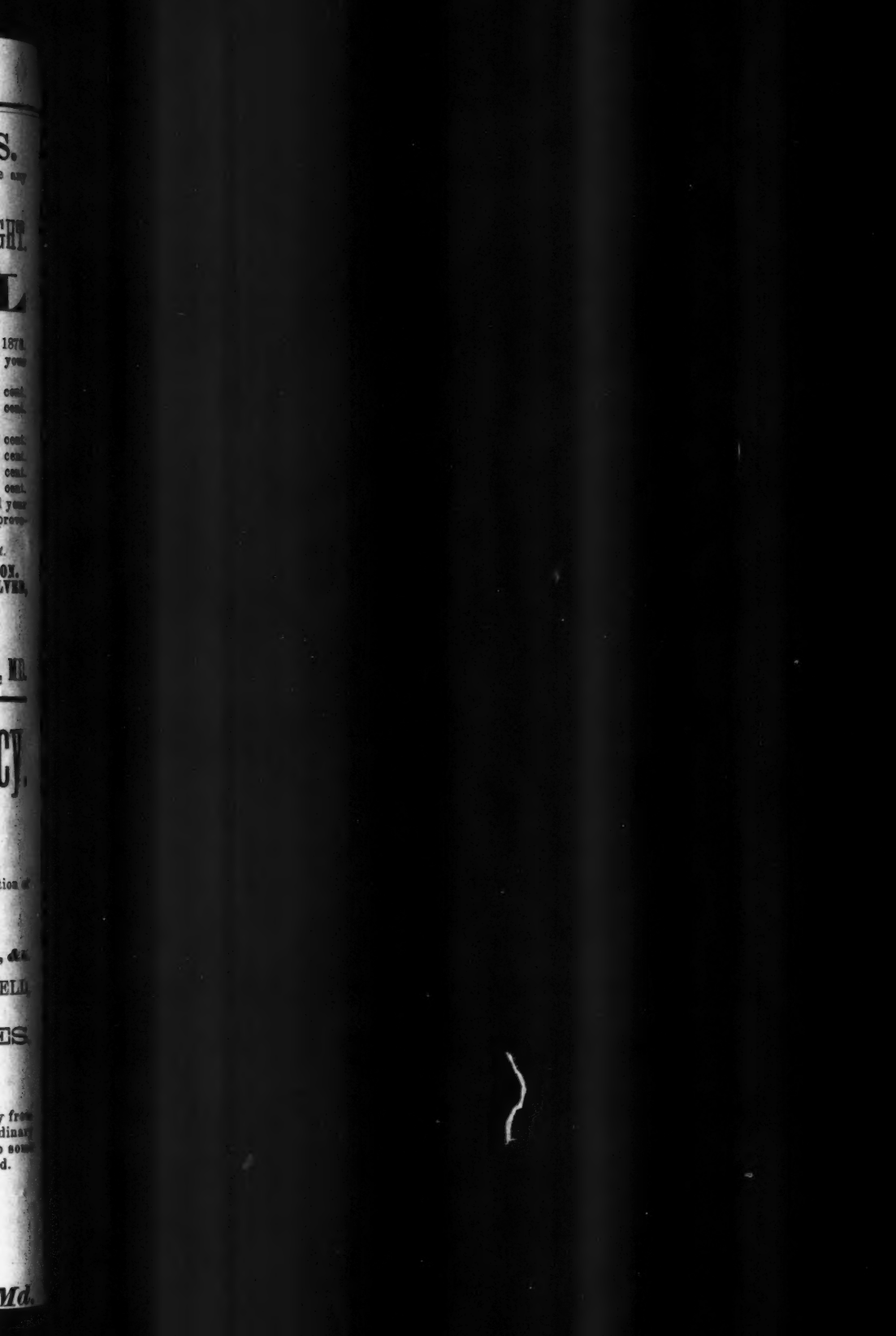
As in all transactions we operate for the purchaser, our terms must necessarily be

CASH (or its equivalent.)

Sam'l Sands & Son,

EDITORS AND PUBLISHERS AMERICAN FARMER,

No. 9 North St., Baltimore, Md.



Edwards - Hawkins

THE

AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

PUBLISHED BY SAML. SANDS & SON, BALTIMORE, MD.

VOL. V.—No. 9.] SEPTEMBER, 1876. [NEW SERIES.

Agricultural Education.

In giving a prominent place, as we did in our last issue, to the address on this subject of Prof. Pendleton, of Georgia, who is himself a successful educator and the author of an admirable text book on Scientific Agriculture, now being widely used, we did not intend to be understood as sympathizing with his views. On the contrary, we are wholly opposed to them, and believe he misconceives the original objects of the endowment by Congress of agricultural colleges, and under-estimates the field of usefulnes which would be opened up to institutions of this kind if well conducted.

The letters we give below indicate, as we think, much more correctly the legitimate objects and the proper situation of such schools. In this age their function should be, in our opinion, to fit young men to become successful farmers, just as medical schools train them for success as physicians. Endowed from the public treasury they should be conducted for the benefit of the bulk of the farmers, and their pupils should be taught and drilled in those things they are expected to practice.

The constant effort of the faculties in charge of our medical schools is to enlarge and widen the scope of clinical instruction, and the student who has to gain practical acquaintance with the processes of his art after he emerges from college would find himself, as should seem to us, at a great disadvantage compared to another who had enjoyed every facility of such instruction.

The present appears to be an era of technica education, and the tendency of the day is to give that bent to the further education of every youth, who has acquired that fundamental knowledge necessary for every pursuit, which will best qualify him for the occupation in which he is to engage.

And this is the turn we should like to see given our agricultural schools. The pupils should there begin, after first acquiring elsewhere the rudiments of a general education, a course which should be directed towards making farmers, and exercise in the varied work of the farm, under competent instructors, shall be as much a part of the system as instruction in the sciences especially bearing upon the cultivation of the soil.

In short, the programme should look to the scientific and practical education of the many who are themselves to till the soil, and not to the higher training of the few to qualify them to make, in their turn, further investigations for working agriculturists.

Is Manual Labor a Legitimate Part of an Agricultural College?

Editors American Farmer:

In the paper read by Dr. Pendleton, of Georgia, before the Industrial Section of the National Educational Association in Baltimore, July 11th, we find the following sentences: "Our settled conviction is, that manual labor is not and cannot be made a legitimate part of a college course. Parents cannot afford to pay board for their sons to do what they could better learn at home, even if their tuition is given them. The art of agriculture is very simple, and may be learned much better by apprenticeship than any other way. We want intellectual men taught at our colleges to be learned agriculturists, who will be able to tell others what to do: not to be mere day-laborers themselves. Young men are not sent to military schools to learn to drill as common soldiers, but to be commanders." * * * * Having the highest regard for, and confidence in, Dr. Pendleton as the Nestor of agricultural chemistry in Georgia, and as one of the men who have done incalculable service to agriculture in the South, we must nevertheless decidedly differ

with him in his views set forth above. They have been formed from a stand-point foreign to an agricultural college—*pure*. They are based on the supposition that agricultural professorships are hung on to a university as an appendix, whereas an agricultural college should be an institution totally independent of any other institution of learning. Dr. Pendleton proposes to start from the top of the ladder instead of from the first round. In agricultural science, as well as in any other, a foundation must be laid on which to build, and such a foundation cannot be obtained in agriculture without having a perfect practical knowledge of the working of all the implements and machinery used on a farm, and all the manual labors to be performed. The Doctor thinks the art of agriculture is so simple, and may be learned much better by apprenticeship, or at home. Does the Doctor not know that out of 100 farms 90 use the most primitive implements and modes of cultivation? Where one boy has a chance to receive proper instructions at home on his farm, there are twenty who do not see or hear of anything concerning cultivating the soil than what their fathers and grandfathers before them knew. Where is the boy to go to learn under-draining practically, so that he can direct his hands if ever it should be required? Where shall he learn the proper management of a threshing-machine in a country where there is none to be found within 100 miles? Where shall he learn to make and repair his implements and machinery in case of emergencies? Where shall he learn to properly feed and care for his stock? *The agricultural college is the place!!* Just as well may a boss builder, or a boss carpenter, or a boss machinist, who does not understand every detail of his business, expect to be successful as a scientificaly educated farmer without the practical knowledge of the very smallest details of the work to be performed on a farm. The Doctor also makes a mistake if he asserts that "young men are not sent to military schools to learn to drill as common soldiers." If such military schools exist, they are abnormities that are foreign to the real purpose of such institutions. "He who will learn to command, must learn to obey;" and nobody can command without being fully acquainted with and able, practically, to demonstrate his orders. In a properly-understood military academy, the first instructions are practical drilling in every respect, and no officer—may he have swallowed all the wisdom in the world—would be admitted in an army without being able to perform *all* the duties of a common soldier. On both these points we speak from actual practical experience. Because the student at the agricultural college learns manual labor, it is not necessary that he should become a mere day-laborer; if his capacities are such, he will rise above that sphere; if not, he has learned that which will enable him to make his living.

We must not lose sight of the fact, that our agricultural colleges must be established and managed for the benefit of the *masses*. Most of the young men frequenting these colleges are of limited means, and expect to return to the farms of their fathers and to continue farming for life, having to assist with their own manual labor. Those few who, by extraordinary natural gifts, are destined to reach a higher destination, will find ample chances, both in higher teachings in agricultural colleges as well as universities, to acquire the required knowledge. When Dr. P. asserts "that the manual system has failed," he also is mistaken. It has failed where agricultural chairs of professorships have been made an appendix to universities, but where agricultural colleges have been established independent, and managed correctly, the manual labor system has proved a perfect success, of which Europe gives indisputable proof. L. A. HANSER.

Bay St. Louis, Miss.

Letter from Dr. Minor, Pres't Va. Agr. and Mechanical College, to Dr. Ryland, Master State Grange of Louisiana.

VIRGINIA AGRICULTURAL AND MECHANICAL COLLEGE, BLACKSBURG, March 17, 1876.

My judgment at first approved the plan of making the Agricultural and Mechanical Colleges parts of Universities, for the obvious reason that most of what the students need is furnished already in the Universities, and that all the resources of any technical school are not too much to supply adequate instruction and equipment for the special technical courses, and I advocated these views with tongue and pen.

I have since learned that in practice the opposite view is vindicated. Michigan, with her independent Agricultural College, beats Illinois, though Illinois makes her Agricultural and Mechanical Colleges part of a University called "Industrial," where, if anywhere in a University, technical schools might hope to thrive, and although Michigan might have made her Agricultural College parts of a University which has made Ann Arbor rank among the first educational centres in the land. In Iowa an independent Agricultural College is among the most successful of all.

Cornell, with all its wealth and its no less wisdom, finds its Agricultural College dwindle in numbers. Massachusetts shows us at Worcester a Mechanical School which distances all competition; and at Amherst (near but quite separate from the old Amherst College) an Agricultural School which ranks with those of Michigan and Iowa, while the long-established and richly-endowed Agricultural School of Harvard University (the Bussey School) has not for some years had a single student. Doubtless the Bussey School does a useful work in its collections, its experiments, its analyses, etc., as does Yale in its way, though Yale's School of Agriculture has no farm nor experimental plot; its School of Mechanics no machinery nor shops; its Military School no arms nor drill. So the Agricultural School of our noble University of Virginia is doing its special work. But the real student of practical agriculture or mechanics, who has worked with his hands and still expects to do so, does not find himself at home in a University, and will not—nay, indeed, cannot—stay there. A place must be found or made for him where working-clothes, short sleeves or greasy overalls excite no remark; where plain dress, plain food and rigid economy are the rule; where he can get a laborer's fare at prices within a laborer's

reach; where he may shoulder his trunk and carry it to his quarters and excite no contempt nor surprise, but gain respect in the community.

Such a school we have succeeded in establishing here. During the last session of ten months, ninety-seven students lived in messes at a cost per month that averaged less than $6.50 each, having free tuition and free quarters. A few earned all, a good many earned a large part of their expenses. We had 132 students in our first session, 197 in our second, and 222 in our third, and for our fourth session, though we have just entered the second half of it, and though we have been obliged to reject many applicants for appointments, we have registered 254 students for the catalogue.

Our resources, course of instruction and all other details you will find in reports, catalogues and other documents sent you by mail herewith. The report for our second year, which I cannot furnish you, will be found in the "Virginia School Report" for 1874, which I have written asking our State Superintendent of Public Instruction to send you.

With renewed expression of sympathy in your purpose, I am, sir, very respectfully yours,

C. L. C. MINOR.

Fodder Corn.

This is the way Dr. Sturtevant, of the *Scientific Farmer*, puts forth his views of the value of this forage crop:

The interval between the two seasons of grass growth, I have to recognize in my farm plans, as surely as I do the winter season, if I would get most from my farm. My pasture full stocked with cows in spring and autumn is twice stocked now at the standstill time, and if I provide not food to tide them over to better times, they come to barn each night and morning with less pints of milk, from which my money comes; and the cows lose in flesh, as well, so that during this hungry time they give no profit, nor are in condition to give profit upon the grass beginning to grow again. So I have learned to meet this time, and not without some failures that have been costly; such failures as experience is built upon; as in the log house, one log is placed above another. I meet this drouthy time then, as I do any necessity that I anticipate, so that short pastures no longer mean short feed for my cows.

In fodder corn, I provide the large store of food required, and get it from a very little land. An acre in corn, the corn from eight to ten feet high, is quite equal, and more, I think, to six or eight acres of grass a foot high, on such fields as give not the blades close together. To have fodder corn the best, we must have neither too few nor too many stalks upon an acre, and there must be sunshine in amongst it. One year I sowed the corn broadcast and harrowed it in. This I found was a poor way. There was a little sunshine in amongst it; the leaves and stalks were watery, and were of a sickly green, and made a food unlike what good food should be. Give this twilight growth to your cows, and then go to your corn-field, and give them an armful from there, and you will quickly see which pleases them better. Sunshine and air have had full play in the one case, and the cows know full well their value. Common is air and sunlight, and cheap; and we must see to it we have enough. There are other objections to this broadcasting; a high wind, such as we may expect, lays the tall growth down, and then it is as bad to cut as lodged clover, and is so rotten, oftentimes, in portions of the stems and leaves, as to make the whole unwholesome food. I prefer to plant in drills, in north and south lines, some three and a half feet apart, with perhaps fifteen kernels to the foot.

Any leafy, fast growing, not too late maturing corn, is good. The sweet corn of the garden answers well. There is much sweetness in the juice, perhaps too much; but I am not sure of this. The Southern white, not so sweet, gives much height and leaf. The seed is cheaper, and perhaps on the whole is as profitable as any kind to plant. Three and a half bushels to the acre is ample; more seed giving less value of fodder. Until the corn has begun to tassel, it is not in best condition for feeding. If fed before, we get less food to the acre than we may get by waiting. Of course we increase the bulk by waiting for the tasseling, but I think the food value is increased more. When the corn is thus mature, with the ears making some show, the cows will refuse the butts; but what they eat will make milk, as it will not when given in a less mature condition.

To get an acre of good fodder, we need rich land. The plant is a strong feeder. Its roots go far and deep; and when we think how much we have of growth, and how small a cut it takes to make a day's diet for the herd, we hesitate the less to supply the manure with a free hand. In this is the cost.

The planting, if done by hand, costs little; and as for the cultivation, a horse with man and cultivator can tend an acre and keep it free from weeds, and the soil well opened to the air, in three or four half days.

It is curious how so strong a drinker as fodder corn gets enough to drink from the soil, and grows so vigorously, at this dry time, when the grass seems dead or dying for thirst.

Before my fodder corn is quite gone, the mowing fields are quite green again, as well as the pasture, and there is promise of enough feed to keep the hay-mow intact, until we have many nights of frosty weather; and the question at this time comes to me, and to my neighbors, Shall I feed my mowings? It receives from me a different answer from what it does from them, with here and there an exception.

Red Oats.

From the *Rural Carolinian*, we extract the following:

We have so often published our success with this invaluable grain, that we are pleased to republish any report about them made by others, that is corroborative of our experience.

A writer in the *McDuffie Journal* gives the following as his experience the past season. This report, however, is faulty in two or three particulars. First, he rates his manure too cheaply.—There are very few places in the South where

cotton seed will not command more than ten cents per bushel. Second, if he estimates the cost of his oats by the bushel, he should have added the cost of threshing to the cost of harvesting. Third, his price of the grain is too high.—Oats should not command one dollar a bushel, and if they do, they must be shelled, and to be shelled, pay must be given for the threshing.—But with all these allowances, this crop netted him more money than any crop of cotton he ever grew. With an assured market, there is more money in growing red oats at fifty cents per bushel than in cotton at fifteen cents per pound.

We hope every reader of the Rural Carolinian will, between this and the 15th of November, sow at least five acres of oats for every head of mules or horses he has to feed. If they do, we need not anticipate poor plow stock for the next crop. Five acres of ordinary land thoroughly prepared, and manured with forty bushels of cotton seed per acre, or their equivalent in any other kind of manure, will grow oats enough to keep a work animal fat for twelve months. Then why should we ever have a poor horse or mule? The *Journal* says:

"About the first of November last, I set apart and had our county surveyor measure off just four acres of land. My object was to enclose it to raise barley for pasturing my stock. I concluded to try first one crop of oats. I began by broadcasting three hundred and sixty bushels of cotton seed; then sowed nine and a half bushels of red rust-proof oats, plowed all under together, with a common one-horse turn plow, and left them to grow, which they did vigorously from the beginning. They soon attracted the attention of my neighbors and all passers-by; and now, since they are harvested, I have thought it would be well to publish the amount gathered from the lot in your valuable paper.

In order to ascertain as near as possible how much the lot produced, without measuring it all, I had Professor N. E. Ware to measure off one acre through the centre of the lot. I then invited uncle Vince Reese, Hon. John H. Scott and H. McCorkle to be present and superintend the weighing and measuring. These gentlemen began by weighing on "Fairbank's Scales" the sheaf oats from the acre, amounting to six thousand four hundred and forty pounds. They then weighed two lots of one hundred pounds each, and had them threshed out. The average was thirty-seven and a quarter pounds per hundred, or seventy-five and one eighth bushels per acre.

The superintendents put the cost of raising thus: cotton seed, $36.00; labor, seeding, harvesting and housing, $16.00; total, $52.00, or $13.00 per acre.

This land was cultivated by my father, about fifty years ago; since abandoned to grow up in pines. Nine years ago I began taking it up from the wilds, and from time to time since have taken in the entire lot. Cultivated it regularly in cotton except one year, when it was sown in wheat; have never used a pound of commercial fertilizers on the lot, but have applied annually from the barnyard or cotton seed. The soil is a stiff clay land.

It is proper to state that the present oat crop was considerably injured by the severe cold weather in March, so much so that there were spots that had to start from the ground after the cold.

I am satisfied that if the land had been thoroughly broken and subsoiled, the yield would have been twenty per cent. greater.

Now, from this showing we have estimated the grain worth $1.00 per bushel; $248.00 net profit from the lot, or $62.00 per acre. Can we do so well with cotton, even at fifteen cents per pound? *I think not.*"

Clover in the South.

The Southern States are being aroused to the importance of the clover and grasses in their husbandry. The following excellent essay on the subject of raising clover was read by the author before the Davidson Co. (Tenn.) Grange:

The subject I propose to give you my views on is one that ought to interest every farmer in the country; it is one, if adopted, that will restore our exhausted lands to their original fertility. It behooves us, here, to look around for some means by which we can, in a cheap and remunerative way, grow something on our lands that will enrich them, and at the same time yield a good income for both grazing and hay. And that is red clover. It will grow on all our lands, both hills and bottoms, rich and poor, except swamp land, and, if that is properly drained, will grow there; hence you see that every farmer in our land can avail himself of the opportunity of its culture. Its benefits are three-fold; it breaks, pulverizes and ameliorates the soil by its tap roots penetrating deep in the soil. In fact, it acts as a subsoiler, doing away, to a great degree, with the necessity and expense of using the subsoiler plows. It furnishes a cheap food for plants as well as animals. I am satisfied a good clover lay is worth to a crop, by the fertilizing principles it affords to the soil, at least five or six tons of manure to the acre.

Thus, you see, it is decidedly the cheapest fertilizer we can use. It is obtainable by farmers of small means—those who are not able to purchase costly manures. All that is necessary to accomplish the above results is to apply eighty to one hundred pounds of gypsum, or land plaster, which, at the present price, will cost fifteen to sixteen dollars per ton.

To insure a good stand of clover, at least ten pounds of seed should be sown to the acre. Clover ought always to be sown on small grain in the spring; if on wheat, barley or rye, it ought to be harrowed; if on oats, rolled. The roller compacts the ground, and the seeds come up more uniformly, and much fewer perish. After the clover comes up, sow one hundred pounds of plaster per acre, and I'll guarantee you won't fail once in ten years in getting a good stand. You need have no fear of your clover being killed by the drouth, without it is an extraordinary dry season. To obtain the full value of this plan, we must cultivate it as a food for our crops as well as for our cattle, and in this case we should plow it under the second year. There is economy in always sowing clover with small

grain, if you had to plow it under the next year. The seed it would take to sow an acre of land would not cost more than one dollar and twenty-five cents. Ordinarily the labor of sowing is comparatively trifling. Its value to the next crop would be five times that sum, to say nothing about its mechanical action on the soil.

The next thing is saving hay. The plan I have adopted for fifteen or twenty years, and I have no cause to change it, is when about one-half the heads turn brown, if the weather permits, I commence to mow. All I mow in the forenoon I rake up into wind rows, and then put up into tall, well-shaped cocks; let it remain three or four days if the weather is fair, longer if cloudy. This mode gives the hay a chance to dry out uniformly, and prevents the heads and ears from being crisped, as they would if left to cure thoroughly in the sun. Clover hay ought never to be cocked or housed when there is the least dew on it. After remaining in the cocks as above directed, I commence hauling to the barn. In storing away, use a peck of salt to the ton; that toughens the hay, and imparts a sufficient salty taste to it, which makes stock relish it much more than they would if it was not salted. If I have more hay than I can house, I rick it out by putting down a layer of straw, wheat, oats, rye or barley, as I may have them, a layer of clover, salting at the same time as above recommended, until my rick is completed, capping it off securely with straw. The straw absorbs the evaporation of the clover, partaking largely of the qualities of the hay.

If our farmers will adopt this plan, I'll guarantee they will always have plenty of good hay to feed on during the winter, and won't have to send North for hay to supply the country.

Cultivation of Sorghum.

The cultivation of sorghum for syrup, at the South, is becoming universal, and is doubtless a profitable economy. At the request of Messrs. Mark W. Johnson and Woodruff, of Atlanta, Ga., Dr. J. W. Herring, of Thomaston, of the same State, has furnished the following brief article on the culture and harvesting of the sorghum, and the manufacture, &c., of the syrup, which we copy from the *Rural Southerner and Plantation*:

Preparation of the Ground.—In Middle Georgia plant from first of April to first of June; range these dates ten days later for Northern Georgia.

After thorough preparation of ground, lay off rows three and a half feet apart, sow three to four pounds of seed per acre thinly in these rows, and cover very lightly with harrow or board. At first working thin out to one stalk every eight or ten inches in drill. Cultivate as you would corn, plowing very shallow after first time. Let the suckers grow, as they make good syrup also.

Harvest.—Watch your cane, and as soon as the seed are in early dough state cut off the tops with as short stems as practicable. It may stand several days without injury. You can now strip the fodder off, and your cane is ready for the mill, though it will not injure materially to let it stand a day or two after the fodder is stripped off, provided the weather is not dry. I have occasionally been delayed in grinding my cane for several days after cutting it and placing it under the shed, in which cases the cane did not show any signs of injury. There being but little saccharine matter in that portion of the cane near the ground, it would be better to cut a foot higher than lower.

Let the tops with the fodder fall on the ground, and after the cane is run through the mill return the former to the ground also, all to be plowed under, thus enriching the soil. The yield of syrup is one gallon to five or seven of juice. The crop matures in from one hundred and twenty to one hundred and thirty days from planting. The seed is good for hogs or cows, when steamed. I have generally planted the "golden seed," and am this year trying the Liberian. I consider it an exceedingly valuable crop, more profitable than corn or cotton. Land good enough to produce twenty bushels of corn will make seventy-five gallons of good syrup; extra good second bottom land, capable of yielding fifty bushels of corn, will produce one hundred and forty to one hundred and fifty gallons of syrup. The syrup readily brings me seventy-five cents per gallon.

Manufacture.—The process of making syrup is simple. An evaporator forty-two inches by six feet, and a twelve to fourteen-inch two or three roller mill, will answer for a crop of not over five or six acres good land. Rapid evaporation is the idea, hence a broad, flat surface on which to boil is indispensable. I fancied I could construct my own boilers, so I purchased copper and went to work; but I find I am in error here, and now see I must have good first-class evaporators made on correct principles, and have made up my mind to use them, now that an Alabamian has, by his genius, given us one at about half the cost of any heretofore put on the market. Juice evaporated quickly on a broad, flat copper evaporator, makes bright and well-flavored syrup. Galvanized iron evaporators answer a good purpose for a while, but as the galvanized surface soon wears off, I do not advise their use. Use about one pound of soda (biscuit soda) to the one hundred and fifty gallons of juice, for correcting the acid in juice. Some use lime for this purpose, but I would advise, by all means, the use of soda. Put in the soda after the juice gets to boiling. By the use of litmus paper, which is reddened by acid and blued by alkalies when dipped in the juice, it may be easily ascertained when sufficient soda has been used to correct the acidity of the juice. The acidity should not be entirely removed. Heat up the evaporator gradually at first. After the juice is well boiled a thick greenish scum rises on top; skim this off. Repeat the skimming as often as the scum collects.

A watchful eye will soon observe from a peculiar thick bubbling of the juice that it has been converted into syrup. Now pour off into cooling vats, tubs, etc., and barrel as soon as cool. This syrup is strictly healthy. The juice should be boiled as soon after being expressed as possible; this avoids the use of much soda. The juice soon ferments if permitted to stand.

The "skimmings" are not fit for any kind of food, but will make rum or vinegar.

Yours, truly, J. W. HERRING.

Orchard Grass in Virginia.

Col. John Washington, of Caroline, Va., writes as follows to the *Southern Planter:*

After a trial of ten years, I know of no grass comparable to the orchard, for this section of Virginia. If wanted for hay or as an improver on pasture, sow clover with it, and the two will surpass any other grasses. If wanted as a money crop, let it ripen and secure the seed. The same land in seed will double the profits of a crop of wheat, with the fall and winter pasturage thrown in. It will live and flourish through heat and cold, dry and wet, and under the bad treatment that the anti-grass farmers of this section always bestow, by letting every hungry animal bite it in season and out of season. One thing it requires—patience. It is feeble at first, slow to reach maturity, and requires fully three years, when sowed with small grain, to reach perfection, and two years if sowed alone. The first and second year's growth should be mowed about last of May or first of June, to clean and cultivate it; for mowing of grass is as necessary as the cultivation of corn. The third year's growth cut for seed, and after that the orchard grass will take care of itself, and the briers, and broom straw, and all other foul matter, except the wire grass, for how long a time my experience does not reach. My oldest grass is as good as it was at three years, and I think will make me an average of 15 to 20 bushels of seed. I expect to have some 300 bushels for sale, after supplying my wants, and harvested a small area.

Composting in Fall and Winter.

Change the ordinary plan of pitching your stable manure promiscuously out of doors is what the *Canada Farmer* urges. Give the composting and sheltering method at least one fair trial during the coming fall and winter, and you will be surprised at the result. Have you a vacant shed or outhouse on the premises? If so, use it for the purpose of storage; if not, erect something of the kind, however cheap and temporary. A common board or slab roof, resting upon bare posts, is better than no shelter at all. Early in the fall, before you begin housing your cattle, cart a few cords of good dry loam or muck into some place convenient and handy to your stables If muck cannot be got, use any other absorbent: straw, leaves, even sawdust, sooner than nothing. Lay a wheelbarrow load or two of this absorbent every day in the trenches behind your cows and horses, and, in cleaning out your stables, night and morning, wheel earth and all out under the storing shed. Continue this during the winter, sprinkling the heap occasionally with plaster of Paris to retain its ammonia, and in spring you will have ready for your fields a fertilizing material worth fifty per cent. more than the best ordinary barnyard manure. When straw alone is used as an absorbent—and no doubt it is most extensively employed—just take the trouble of running it through the cutter beforehand, and you will thus not only lessen the difficulty of subsequent handling, but materially aid in its incorporation with the animal waste. In applying this compost to the fields, it is to be treated in the ordinary way, that is, spread broadcast over the suface and ploughed under, if on the green sward; or thoroughly harrowed in, if on the inverted sod. The principal gain effected by composting is the preservation of the liquid excrements, which by the usual method are almost, if not altogether, lost; and when both science and experience alike prove these to be of more enriching value than the solid, surely it is to the farmer's interest to do all he can to conserve them and enjoy the profits accruing from their application.

Burning Tobacco-Plant Beds.

Dr. Blanton, Master of the Virginia State Grange, writes to the Virginia Patron, as follows:

It is well known what large quantities of wood and valuable timber are consumed in the usual way of preparing plant-beds, and how laborious and trying to the physical strength of the hands is the work required. Now, here is a simple, cheap, and quick mode of accomplishing this formerly very expensive, laborious, and wasteful but necessary work. *Substitute kerosene oil* for wood—one gallon to the one hundred square yards is said to be sufficient by those who have tried it. Clear off the bed selected as if for burning in the old way, then with a watering-pot apply the oil evenly and uniformly. Strike your match, start the fire, and get out of the way. If it be desirable to burn deeper, before applying the oil, hoe up the bed, and then proceed as above directed. The oil will penetrate the soil as far as it is worked by the hoe, and will burn as deep as the oil penetrates. I have tried it in my garden, and can vouch for the fact. Several parties in Halifax county have raised tobacco plants by this method. Dr. Chaddock will give any desired information.

An Experiment with Wheat in South Carolina.

Mr. A. B. Watson, of Ridge Spring, S. C., writes the *Southern Cultivator* that he sowed a four-acre lot in wheat the last week in November, plowed in with the ordinary scooter plow, 125 bushels of cotton seed having been previously broadcasted. Harvested with Buckeye reaper the 29th May; threshed the 2d day of June. Yield 161½ bushels; or 40 bushels to the acre. I am satisfied the yield would have been much heavier, had not the frost killed a number of spots—the most promising parts of the field. The reaper was the first ever used in our section, and gave great satisfaction. They do best on land cleared of stumps and harrowed or smoothed.

Our farmers, says Mr. Watson, cannot too soon substitute, as far as possible, labor-saving machinery and manures for manual labor. Such a course, coupled with a diversity of crops, will certainly herald the dawn of a brighter day.

Correspondence.

The Seeding of the Cereals—how shall we put them in?

Messrs. Editors American Farmer:

At this time of low prices for agricultural products and disproportionately *high* prices for labor, taxes, implements, fertilizers, seed and supplies, the question of tillage becomes a very important one. How shall we *save* our crops has already been settled in the grain-raising districts, but there are sections of our country (particularly in the South and West) where the seeding of the cereals is increasing in area and necessarily in the quantity of seed employed, and an inquiry into the mode of seeding may be beneficial. Two methods are practiced: broadcasting, (sowing the grain on the furrow and then harrowing, or harrowing the ground and then sowing and shoveling in,) and drilling, after the land has been harrowed for the work; the latter is done with two-wheeled vehicles, (drawn by two or three horses), which sow six or eight feet in width, dropping the grain and fertilizers in rows eight or ten inches apart by means of tubes to which sharp teeth are attached, opening the ground for a moment to receive the seed at the desired depth, which then closes upon it, sufficiently covering it without any further work.

Let us look at the two modes and their results and ascertain if we can if the diminution of the grain product in some sections can be arrested and the aggregate in others increased by a change in the method of seeding. We know there has been a remarkable decrease in the wheat crop of the six New England States, falling off 50 per cent. between 1840 and 1850; the Southern and Western States indicate the same rate of decrease; New York shows 6,000,000 bushels in 1860, against 13,000,000 in 1845.

We may mention in this connection, that a considerable portion of the farmers of New England have never seen a drill, and that the proportion in 100 acres of broadcasted wheat to drilled wheat in North Carolina, South Carolina, Georgia, Alabama, Mississippi, Texas and Arkansas, is respectively as follows: 97 to 3; 99 to 1; 99 to 1; 99 to 1; 99 to 1; 98 to 2; 100 to—. In 1860, the wheat product of those States in bushels, was respectively as follows: 4,743,706; 1,285,631; 2,544,913; 1,218,444; 587,925; 1,478,345; 957,601. In 1870, it has fallen off to the following number of bushels in the same States, in the same order respectively: 2,859,879; 783,610; 2,127,017; 1,055,068; 274,000; 415,112; 741,736; or an aggregate in 1860 of 12,816,565 bushels, against 8,256,422 in 1870; a loss of over 4,000,000 bushels. Now, would it not be well to examine—among other essential matters—the mode of seeding, to see if a change would be beneficial in arresting this decline? As the usual mode is broadcasting, would not a few comparative experiments in drilling be advisable? A field is here open for the display of true patriotism, for the individual pioneer becomes—after he has run the usual gauntlet of persecution—the benefactor and the hero of the nation.

On the other hand Maryland—in which three-fourths of the wheat is drilled—holds up to her 6,000,000 bushels in 1860, within 300,000, in 1870. The older States, New York and Pennsylvania, (in which we would naturally look for a decrease by virtue of continued cultivation,) show an actual increase. New York gives 12 million bushels in 1870, against 9 million in 1860; but New York drills in half her wheat, and gains 3 million bushels. Pennsylvania drills in nearly three-fourths of her crop and gains 7 million bushels, her figures standing 13 million for 1860, and 20 million for 1870; and little Delaware, drilling in three-fourths of her acres, gets within 17,000 bushels in 1870 of her crop of a million in 1860. Once more: the Department of Agriculture, looking at this matter with a wise discrimination, investigated the question by means of its correspondents scattered over the country, and gave the following results of its inquiries:

In New York the increase of the product by drilling was 13 per cent: (as a great deal of the change from broadcasting to drilling has, no doubt, been effected between 1860 and 1870, it is reasonable to attribute at least a portion of the increase to this cause, without actual returns from reporters requiring it.) New Jersey, 6; Pennsylvania, 12; Delaware, 10; Maryland, 7; Virginia, 12; Tennessee, 10; West Virginia, 12; Kentucky, 10; Ohio, 16; Michigan, 9; Illinois, 19; Indiana, 15; Missouri, 21; Kansas, 16; Nebraska, 17; Oregon, 5; and the following summary from what unquestionably was an impartial inquiry designed to elicit the truth from observing farmers was submitted:

Forty per cent. of the wheat of the country is seeded with drills.

Nine-tenths of the testimony claims superiority for the drill in seeding winter wheat.

An average increase of 10 per cent. is assured by the use of the drill.

A large majority of observers state that in most soils drilling prevents or reduces the loss likely to occur from frost; that some advantage is secured by the surface drainage of the drill; whilst on some heavy flat lands, the water freezes in the drill furrow and is injurious.

And that one-sixth of the seed wheat (5,000,000 bushels for the crop) could be saved by the use of the drill: less seed being required, as experienced parties know, to produce the same if not better results.

We might still further throw light on this question by stating that with a good drill we have the opportunity of putting both seed and fertilizer in the same row together: the importance of seed fertilization has been sufficiently demonstrated by experiments to dispense with further references: we might also allude to the thorough working and smoothing the land gets by the sharp leveling action of the drill teeth every few inches across the whole field; we might also refer to the advantage of putting all the fertilizer *in the land* where it is needed, no matter how hard the wind may be blowing, and not in fence corners, or the public highway, or near-by streams, or to increase the already fat and overfed fertility of our neighbor's grass fields. The writer even might give instances of the gradual change in his section from broadcasting to the

drill seeding, of not only wheat, but oats, rye, and even buckwheat, but we have said enough to lead to inquiry upon the part of those anxious to lift up the American average of twelve bushels of wheat per acre, until it approximates nearer, if it does not surpass, the thirty bushels of old England. DAWSON LAWRENCE.

Howard County, Md.

Winter Oats.

Editors American Farmer:

This grain has been cultivated as a distinct winter crop for over 30 years in the higher mountain region of east Tennessee, where the altitude is over 2,500 feet; and so far as freezing and thawing are concerned, the winters are quite as severe as they are on any winter crops in the State of Maryland. The crop has proven to be one of the finest and most profitable crops our farmers can raise. The yield is quite as much again with us as the summer beds will produce. The slow growth gives a large strong stalk to bear up the heavy loaded head, and there is no difficulty about lodging or falling down. The seed is sown as early as August and September in drills (if possible) at the rate of one bushel per acre. This gives it a good strong stool before winter; now our farmers value the crop very highly for feeding calves and small stock. EDWIN HENRY.

Greenville, Tennessee.

Throw in Your Mite.

To the Editors American Farmer:

There are lazy people in the country as well as elsewhere, and to my notion it don't pay anywhere. Idleness produces want and misery everywhere. If it was not for industry, what would become of the world? I never saw a lazy man a good farmer, a good scholar, or useful. Who is it that adds to the wealth of a country? who is it that contributes to the knowledge and power of the country? is it the idle? No. As ignorant as I am, I try to be useful and throw in my mite to the good of the present generation as well as of posterity. There are a great many men I know might be shining lights if they only had the industry to apply their minds and their pens for the benefit of farmers and society. Look around and observe how many literary and scientific periodicals are abroad in the land, and they are made up by contributors. Why cannot farmers devote some time to the study of those branches of knowledge from which they could eke out plans, theories and facts that would materially aid their brethren in making their lands more productive, lessen expenses and save time. It would elevate the profession and increase the happiness of the rural world. Time is capital and knowledge is power. I would say more: the labor bestowed on the acquisition of knowledge is like the bread thrown upon the waters—it will make many returns to the good people of the country. I say these things to encourage the many readers of the *Farmer* to take an interest in the welfare of the rural population of the country. Let them be elevated by the knowledge and experience of the thinking and reading portion of our agriculturists. In whatever business that obtains, there are those whose minds lead them to scrutinize thoughts and theories which often result in good. Let them place it before their fellow-farmers; thus knowledge is disseminated and the science enlarged. Sirs, I would be glad to see the farmers stirred up on this subject. A man does very well in strictly attending to the duties of his profession, but he adds to his usefulness when he imparts to his fellow-farmers something that would be to their benefit.

In some of your back numbers you invited us to write about our farming matters; throw together useful portions of our knowledge and experience, and you would make them plain and readable. The more I think of it the more I see you were right. We want experience and suggestions; there might be money in a single thought, experience or successful practice.

With my best wishes for your success and that of your patrons, Yours, RUSTIC.

Rain in August.

Messrs. Editors American Farmer:

From journals of weather kept by the writer from 1833 to the present time, a period of 43 years, it is proved that the liability to rain on the first day of August, or the day before or the day after, is at the ratio of *forty to three* in favor of rain, which amounts almost to a certainty. Nearly the same is recorded of the first Saturday in August, or the day before or the day after.

Of the past 43 years it actually rained on the *first day* of August, or the day before or the day after, for 40 years. Of the 43 past years it rained on the *first Saturday* in August, day before or day after, for 31 years. So the chances for rain at that time is at the ratio of 31 to 12.

We infer that this knowledge might be valuable to the community, and especially so to farmers and gardeners, as they might arrange their crops so as to receive the benefits of those August rains in proper times, and thereby partially escape the injurious effects of the hot dry season. This statement is applicable to the vicinity of Charlottesville, or the central part of Virginia; and we think it probably applies to the entire State, and, perhaps, to Maryland and North Carolina as well.

This liability or almost certainty to rain early in every August may seem paradoxical, although true in fact; and we only know it is so, and must content ourselves with the result until the laws that govern meteorological phenomena are better understood. J. FITZ.

KESWICK DEPOT, *Albemarle County, Va.*

A Valuable Recipe.

Editors American Farmer:

You might probably be instrumental in the instant relief of some poor soul by giving publicity to the following recipe which I know to be truly effectual for diarrhœa or even cholera:

20 ounces water, 15 drops oil of peppermint, ½ ounce calcined magnesia, ½ ounce red pepper, and 1 ounce spirits of camphor. Mix in a bottle and take in small quantities at a time.

The preparation was given me many years ago by old Dr. Wethered, of Philadelphia.

Cecil Co., Md. J. S. H.

Our French Letter.

Harvest in France.

Messrs. Editors American Farmer:

The harvest ordinarily commences in the south of France about June 8; this year it is nearly three weeks late, except in the North; it is, however, now completed; and so far as can be judged, the yield will be a fair average. In many cases winter had to be replaced by spring sowings of wheat. Hay in several regions has proved a satisfactory crop, and if the humidity was favorable in one case it was objectionable in another, from the weeds which were rapidly developed.

Labor-Saving Machinery.

An agriculturist of antiquity, Varro, "the most learned of the Romans," observed that a good cultivator ought to follow the errors of his predecessor, then those of his neighbors, and lastly undertake some experiments. It is in this third stage that France now finds herself respecting harvesting machinery. The price for cutting grain crops per acre is fr. 14, therein including the one-third for binding. With the reaping machine the total cost per acre is one-half less, allowing for all general and special expenses. French agriculturists are not insensible to this serious difference, and are every year being compelled, from the diminution of manual labor, to consider the necessity of employing machinery; native implement-makers do not appear to be equal to the occasion; they are allowing foreigners to cut them out. The buyers are numerous; for it is estimated France requires 200,000 seed-distributing machines, and possesses but 15,000, and wants at least 100,000 mowing and reaping machines. The question of meeting this deficiency is so important and pressing, that the government has requested its prefects to study the best means for extending the use of these implements, as well as of steam ploughs and threshing machines; and if the municipal councils, of which there are 36,000 in France, that is to say one for each parish, could not allocate funds to purchase these machines, and repay their cost from the tariff charged for hiring them out.

Shearing Animals to Promote Fattening.

Baron de Wöllwarth has done much to settle the vexed question as to the efficacy of shearing or clipping animals as a means to promote rapid fattening. He selected 22 bullocks, 12 of which he clipped after they had been without food for 18 hours. The result was very unfavorable for the shorn lot, especially immediately after that process, and the more markedly so, as before the experiment there was no sensible difference in the daily augmentation of the 22 animals. Clipping is thus far from being a universal panacea; that operation increases generally the wants of the animals, for, deprived of a portion of their coats, they are more exposed to the action of cold, and the increased digestibility means a greater production of heat to supplement what has compulsorily disappeared. The beast gets warm at the expense of its fat, or, in other words, the shearing necessitates a supplement of food. There are exceptions; as in the case of horses of a lively disposition, and only sojourning in the air pending work; here clipping diminishes transpiration, which, from its exhaustive tendency, demands even an excess of food. There are cases where sheep and cattle can be shorn if the sheds be too warm, but improved ventilation might tell better on the stock. Then, again, there are animals sensible to cold, and others much less so.

Preserving Corn Fodder.

Professor Sanson draws attention to a general error, and which it is important to rectify now that maize-fodder is becoming so largely cultivated for preservation in trenches. "The best moment to cut maize, is when the seed commences to form in the ear." Such is the common belief and error. The nutritive value of maize as a forage plant, is subject to the same laws as clover, hay, &c. Now it is well known, as proved by scientific investigation and practical experiment, that a plant is richer in nitrogenous and protein matters, in proportion as its development is not advanced, or is, in fact, young; that in proportion as it becomes old it becomes more woody, the cellular tissue increasing and the protein diminishing, and that the digestibility of the forage and the assimilation of its principles diminish with the maturity of the plant. Wolff has demonstrated that red clover in its first growth contains 22 per cent. of protein, and only 10 when nearly arrived at maturity; the increase of cellular tissue being respectively as 25 to 42. It is well known to graziers, that the extent of meadow sufficient to fatten an ox pasturing, would never accomplish that end with the hay produced on the same superficies. The seed of a plant absorbs (concentrates) the elements of its stems, and hence the *entire plant* ought to be more nutritive when it is in its flowering, than in its grain-producing stage. Payne also has shown, that in this younger state, the juices of digestion act more powerfully and uniformly.

The Food of Domestic Animals.

Having alluded to M. Wolff, I must remark that that eminent German's great work, "The Rational Alimentation of Domestic Animals," has appeared in a French dress. He is director of the Agricultural "Station" of Hohenheim, and since 25 years has devoted his attention to the scientific and practical study of the comparative richness of the food of animals, its relative digestibility, and its constituents. On these points he is perhaps the first authority of the day.

Messrs. Heiden, Von Gruber, and Brunner, have conducted a series of delicate experiments to decide, whether it was more profitable to give to milch cows, potatoes raw or steamed; they found, that a ration of 28 lbs. of potatoes per day, produced no effect either on the quantity or quality of milk, or on the animals putting up flesh. Messrs. Wagner and Schaffer's experiments on the cooking of the tubers conclude, that unpeeled potatoes ought to be boiled, and those peeled only to be steamed.

Fish Culture.

The French Legislature has decided that fish culture shall form a part of the programme of all the farm schools. This was a branch of rural

industry formerly much cultivated in this country, especially in reference to carp. The latter is a most prolific and easily propagated fish; weight for weight, it fetches nearly as high a price as beef, and no farm stock can manufacture flesh so rapidly as carp. Any pool of water can raise the fry; at two years of age they must be transferred to larger spaces of water, and even then can command at the rate of francs 200 per 1,000 head.

Insect Crop-Enemies.

The bean crop is severely attacked this year with the black bug; ashes, soot, guano, scattered in the early morning while the dew is on the plant, a solution of urine, &c., have been tried with more or less effect. Steeping seeds in a poisonous solution and hastening the growth of the young plant, are amongst the most efficacious preservatives. M. Burvenich recommends that an excellent means to prevent the root of cabbages from being attacked by the worm, is to plant them in furrows somewhat like celery; the cause of the disease he asserts is due to the aridity of the soil.

The Phylloxera.

If no cure has yet been found for the vine bug malady, the attempts to conquer the phylloxera are far from diminishing. Submersion of the vines is up to the present the sole remedy that has everywhere succeeded where tried; the sulphuret of carbon has given but chequered results. A feeling in favor of importing American vines, on which French stocks could be grafted, has set in, and the government has nominated a commission to go to Philadelphia and investigate the subject.

Items.

Germany has decided to establish an agricultural "station," exclusively devoted to the culture of the best varieties of sugar beet: in that empire the manufacturers themselves raise 69 per cent. of the beet cultivated. For the production of 1 cwt. of sugar, 11 cwt. of roots are necessary, and the expenses of manufacturing vary from francs 35 to 40 per cwt., the duty being francs 11 on that quantity.

Messrs. Transon, of Orleans, find that rolling the seeds of larch, pine, and of other trees, in a paste of red lead, and drying them before sowing, completely wards off the attacks of birds and field mice.

The agricultural society of the lower Seine finding all existing instruments unreliable for detecting the adulteration of milk, now offer a prize of a gold medal and francs 700, to the inventor of an instrument capable of indicating if milk has been skimmed or watered.

Paris, July 27, 1876. F. C.

Observations and Suggestions.

Editors American Farmer:

In this vast country, it is not to be expected that there should be a uniformity of soil and climate. The weather often differs in the same section, the same county, and even in the same neighborhood. In whole strips and directions, the seasons have been everything the farmer could wish, even so much rain as to impede the usual work in the ground, retarding hay making, harvesting, stacking and saving grain. Those wishing to get their grain to market have been prevented from threshing.

On the other hand, we have heard of drouths and hot weather, which retarded the growth of grain and grasses. Such things occur every year somewhere. There are complaints that in many places the clover and timothy seeds sown the past season, as a general thing, have failed. That is a matter that causes much inconvenience and loss to farming. It is injurious to land to be over-cultivated, whereas if the grasses had succeeded the land might have rested. The grasses would have been profitable for mowing or pasture. As to land being cultivated too often in consequence of being in a naked state, it requires constant manuring or fertilizing. The friends of liming contend that its use almost insures the stand and growth of clover and grasses. I should think then that the time and cost of procuring and using the lime would be amply remunerative presently and prospectively. This has been a year, as far as known to the writer, in which all fertilizers, bought and home-made, have been efficacious. The effects of a good crop tells for a good while; besides filling the pockets, it affords us the material for manures. I have known farmers after they had planted their corn, haul out on the fields for wheat, the spare straw and spread it on their bare places,—thus affording food and covering for the land.

Nature abhors a vacuum, so does land seem to dislike idleness; it is apt to produce something; if not grain and grasses, it will throw out weeds. When it is thought advisable to rest land in order to recuperate the sheep is an animal capable of living on meager pastures and conduce to their fertilization; what they take off, they return it with interest in a solid and soluble form.

Summer is progressing and will soon be supplanted by autumn. Each season has its peculiar duties and produces its different fruits, vegetables and seeds. We must look ahead and be ready for them when they come. It is well to look ahead; have everything ready; it saves time. Looking ahead and having everything ready, pertain to all callings. Don't trust to chance; it is too much like guessing, and don't always hit. The fruits of industry are independence; and of idleness, want and hardships.

PHILO.

American Beef for Europe.

The *New York Herald* states that intelligence has been received that the beef which was shipped from the Jersey City abattoir to England by the steamer Abyssinia arrived in an excellent condition and brought good prices in the London and Liverpool markets. The meat was as fresh and tender as if killed only two days previously, and the English cattle merchants were amazed. The American beef was rapidly bought up at less than half the price charged for English beef. Now that regular ice compartments have been provided on certain steamers, arrangements have been made for shipping five hundred cattle a week to England.

The Dairy.

Experiments in Setting Milk.

We have received from the author the following Report of Mr. Jno. I. Carter to the Experimental Farm Club of West Grove, Chester Co., Pa. Mr. Carter is the capable Superintendent of the Farm, from whom we have heretofore received valuable reports of experiments, and the following was given at the earnest request of several members, who asked for his ideas on the "Hardin Method," which are as follows:

REPORT ON HARDIN'S REFRIGERATOR.

I desire to report to the club that, after a pretty thorough trial of Hardin's Refrigerator, I have reached the following conclusions: First, That milk set in deep cans under proper conditions, will raise cream that will yield as much butter as if the same milk had been set in shallow pans. Second, Milk set in low temperature, say 40 deg., under proper conditions, will yield as much butter as if set in a temperature of 60 deg. Third, Neither light nor ventilation are of any importance, if the milk is soured and set at low temperature. Fourth, That butter made from tightly-covered cans and in a low temperature will be better and keep longer than that made from shallow open pans in a temperature of 60 deg., or such as is usual in our springhouses or vaults. Fifth, That butter made from covered cans, set in a low temperature, will be more even in quality than if set exposed to the usual atmospheric influences. Sixth, As Hardin's system is in accord with the foregoing axioms, and also makes an important saving in tin ware and labor in care of milk, also in space occupied by the milk, I therefore feel free to commend its consideration to such farmers as desire to make good butter and have no present facilities for so doing. As to the quantity of ice required in this system, so much will depend on circumstances that it is impossible to make definite or even proximate estimates.

With ice at 32 deg. and milk at 85 deg., you can see at a glance that it will take no small quantity to reduce the milk to 40 or 45 deg. I have suggested to Mr. Hardin a modification of his box arrangements that I think will increase its adaptability to large dairies. It is to dig out an ice house convenient to house or barn or cow yard, and in connection make a milk-room which shall be divided from the ice house by a partition—which shall form the back of the refrigerator. The upper part or ice-chamber of the box shall open into the ice house for convenience in filling.

The milk box proper shall be divided into 4 compartments, each with separate doors. One compartment for each of the three settings, (allowing milk to stand 36 hours,) and one for cream. This arrangement will obviate the necessity of opening any compartments from the time of setting until ready to skim, thus avoiding unnecessary exposure or waste of ice. The back of the box being next to the ice house will save coolness otherwise lost. It hardly seems proper to make statements so contrary to the experiences of many dairymen without attempting to account in some way for their apparent contradictions. When I assert that ventilation is of no importance in making good butter, almost every dairyman present will immediately say their experience has been quite different; and the same with temperatures below 58 deg. or 60 deg., and the same with deep setting. but in all these cases the conditions must be different from those under which they have reached their conclusions. For instance if milk is to be set in a temperature of 40 deg. or 50 deg., it must be set in bulk of not less than from 3 to 5 gallons, or not less than 15 or 20 inches deep. To escape the influence of bad ventilation, you must set your milk in a very low temperature, so low that the germs of fermentation or other injurious fungi are suppressed or destroyed. Again, if you set in deep cans, you must have a lower temperature than set in shallow pans. These different requirements and conditions would seem to indicate that in order to secure a thorough raising of the cream, milk must be subjected to a tolerably rapid and continuously falling temperature, lasting perhaps for 12 hours, and dropping to thirty-five or forty degrees, depending upon the quantity of milk in the vessels. The explanation is probably this: That the contraction that naturally follows a lowering temperature produces a movement in the particles of milk that is an important aid in releasing and raising the butter globules to the surface, or, in other words, in throwing up the cream. This lowering in temperature should be reasonably rapid, to prevent fermentation or the souring of the milk, which, of course, stops the raising of the cream. I have found it impracticable to get all the cream from deep cans in a milk room of sixty degrees for this reason. Neither can you get all the cream from shallow pans in a low temperature, because the minimum temperature is reached too soon, or before the cream is all out. Dairymen sometimes meet this difficulty in cold weather by heating the milk to 120 degrees or so, thereby prolonging the time of the falling temperature. I think the farmers can safely act upon these premises, and adopt either deep or shallow setting, or cold or warm temperatures, as their inclinations prompt or their circumstances warrant. The improved and even quality of butter, particularly in hot weather, will probably more than balance the expense of ice; but this, of course, depends on circumstances.

JOHN I. CARTER.

Philadelphia Gilt-Edged Butter.

Many judges of good butter aver that the best butter that can be found in the United States is made near Philadelphia. But if the same degree of neatness and care be observed in other localities where the cows are supplied with as good grass, there will be no difficulty in making an article fully equal to Philadelphia print butter. The milking is done quietly and rapidly, the same milkmaid always attending to the same cows. The spring house is usually of stone, on a side hill, the floor covered with running water,

and, therefore, always cool and free from odors. Deep tin pans, painted on the outside, with bails for handling, are filled to the depth of three inches, placed on an oak floor, surrounded with cool, clear water of a temperature of fifty-eight degrees. The cream is taken off in twenty-four hours, kept in deep vessels holding two gallons, and stirred whenever a new skimming is added. A barrel churn is used, the churning lasting an hour, when a little cold milk is added to cause the butter to gather. The buttermilk drawn off, ice cold water is added twice, a few turns given to the churn each time and the last water is scarcely colored with milk. A gentle rocking of the churn soon collects the butter, which is left two hours to drain off the remaining water through a small hole made for the purpose. The butter is worked by a corrugated wooden roller revolving on a shaft supported over the centre of the table, which also revolves under the roller. The roller does not quite touch the table, so there is no crushing of the particles, but a separation which permits the water or milk to flow away. A cloth wrung dry in cold spring water is repeatedly pressed upon the butter until not a particle of moisture is seen upon it as it comes from the roller, and the butter begins to adhere to the cloth. That is called "wiping" the butter. An ounce of salt to three pounds of butter is then thoroughly worked in by the aid of the same machine. It is then weighed in pound prints, deposited in trays and set in water to harden. The next morning it is wrapped in damp cloths, each pound by itself, put in a tin case upon wooden shelves, with two compartments of pounded ice to keep it cool, and surrounded by a cedar tub, it is sent to market and sold at $1 a pound.—*New York Herald.*

Spinage.

One of the very best spring vegetables is spinage. It is very hardy, and before the snow is gone it gives us an agreeable taste of the coming vegetables. It requires, like the turnip, rich ground to do well. It is best to sow it broadcast, raking it in when sown, and, if possible in a garden, rolling it. It will soon come up and reach some considerable size before frost. When frost comes the spinage-bed shou'd be covered with straw, or some other litter, keeping it down with poles. The plant is hardy enough without this protection; but as the object is *early* vegetables, the earliness is assisted by this covering. There is at least two weeks of difference in the value of a crop covered, and one left to take its chances. The covering need not be deep. It may be laid over so that the earth can be seen here and there through it. If the heaviest of the sun is shut out, that is all that is wanted; for it is the sun in winter pouring its rays on the frost-covered plants that seems to do the harm, so it is as much the shade as the straw that brings the benefit.

By sowing the latter part of August or the first week in September it will produce an autumn crop; but for spring use it should be sown the latter part of September or the first week in October.—*Germantown Telegraph.*

Live Stock.

Improving a Flock.

The improvement of a flock is easy, says a correspondent of the *Western Rural*, and may be carried forward indefinitely by using thoroughbred rams. The fixing of a type of improvement upon a flock has to be done by a rigid system of culling and close breeding. The highest success has been achieved by in-and-in breeding, but it is an art few men have the brains to attempt successfully. By close breeding we mean using rams of same breed, and breeding strain or family. Continue this, and in the third or fourth generation breed a ewe, which takes back after the original ewes, to her sire—and if the product be a ewe and continues to show the old strain, breed it back to the sire again. Go no further, though, nor do this, only as correcting what seemed to be a stubborn case. In no case use a ram from such a flock upon itself. The degenerate blood would show its supremacy. In a thoroughbred flock, using a home-bred ram is desirable, if he is worthy. He ought to be the best one the flock could produce. Thus a strong family type may be fixed and perpetuated.

In buying a stock ram, buy a young, strong, vigorous one. If he nicks well with your ewes, breed him to these same ewes as long as they live. The oftener a female produces offspring from the same male as a rule—and where breeding after the male is prominent—the more will she breed like the male. This is noticeable in all cases where large families have been produced from the same pair—animal or human. There are exceptions to this rule, but in those cases our observation and experience is, that they should never been bred together.

The breed with which to cross depends upon what you keep sheep for, upon the kind of land and feed you have, upon the amount of attention you propose to give them, upon the amount of money you want to make out of them, and somewhat upon the kind of sheep he may personally fancy. Remember, in all cases, that intelligent cross breeding is success, and that careless, hap-hazard breeding is bad luck, or sheep have "run out," or are "too tender," and that kind of explanation.

My neighbor has 200 sheep that clipped 319 pounds this year, which brought twenty cents per pound. He is going to improve every year, but never does; he has been promised a Kentucky improved ram and is waiting for it. Select your breed intelligently, then select your breeder. Tell him what you need. Be sure he has good sheep and is an honest man; then buy from him every year. Buy a good ram, it is the cheapest. If you can't pay cash, buy on time, as you can of most any breeder, with secured notes—but improve your sheep.

Cutting and Steaming Feed for Cattle.

Mr. G. W. Palmer, of Saltville, Va., gives the *Southern Planter* the following account of his plan of wintering cattle:

As requested by you, I give a statement of

my mode of wintering cattle. I have now had four years' experience in cutting and steaming corn-stalks or fodder and straw for my cattle, and I am fully satisfied that it is the most profitable way to winter them. They came through the winter in fine condition, and weigh on the first of April something more than they did in the fall off grass, which enables me to put them into market fat by the middle of June or first of July. One lot of two-year old steers were weighed on the first of December, and again the first of April last, and they had gained an average of 98 pounds each.

I had three steam engines in operation the past winter (two eight-horse power each and one five-horse power.) With one of the eight-horse power engines I cut and cooked the food for 200 cattle; with the other two I only had 100 cattle each. I have with each engine a portable mill, stone 18 inches, which has a crusher in the eye of the stone. This mill is a new invention, and with an eight-horse power engine will crush and grind into meal fifteen bushels of ears of corn per hour. I cut the corn stalks fine—say three-eighths of an inch long—wet them, and then put on and mix as much of the cob meal as I wish to feed (depending whether the cattle are for beef to be sold the following June, or young cattle which are to be fed the next winter, or milk cattle.) The food is then put into the steam box and steamed from one and a half to two hours, when it is soft and juicy, and is relished very much by both horses and cattle. I do not feed my stock cattle or milk cows any hay. I also find that my calves winter much better on this food than any other that I have ever tried; have never had one to die since I commenced feeding them cooked food; before that I lost from ten to fifteen per cent. in number every winter. It takes about one-fourth the fodder to winter cattle that it does where they are fed in the old way out of doors. I sold $11.25 worth of corn-stalks last winter to a neighbor, who had more cattle than he could winter, and fed them on a poor piece of land so as to save the manure. This would have been worth $40 had I the use of more barn room so as to have cut and cooked it and fed it in barns. I believe that if all the corn-stalks and straw which are now nearly wasted in the State of Virginia were cut and cooked and fed to beef, that the profits on them would pay the interest on our State debt. One great item of profit is the immense quantity of the very best quality of manure which it enables me to save and return to the land, thus improving the plantation every year.

I build barns that will hold one hundred head of cattle, at different points on the plantation, so as to have them near where the corn is raised, saving the hauling of it and the stalks, as well as the manure. My barns cost about $700 each. I cordially invite any one who is interested, to pay me a visit at any time, but especially during the winter season, when my engines and mills are at work.

Fattening Cattle.

T. J. E., Chester county, Pa., writes to the *Country Gentleman:* The farmer in the Eastern or Middle States who feeds his grain to cattle for the purpose of making beef, has three sources from which to look for profit, or to charge his loss, viz: gain in weight, increase in value per pound, and increased value of the manure. The latter factor is perhaps the only fixed one, though it may be assumed that the first one is to some extent fixed. It is safe to assume that in ordinary seasons neither one of these will afford sufficient margin to guard against, but any two of them may do so. With careful selection, judicious feeding and management of manure, the gain in weight and increased value of the manure may save the feeder from loss, but taking the average care in selection, feeding, and management of manure, these two items will not allow any margin. It is true that the English feeder seldom obtains more per pound than he gave, but my own experience satisfies me that without I credit my manure pile with "balance of account," I am not safe unless I can obtain one cent more per pound than I gave. This added to the gain in weight and increased value of manure, will fairly give market price for grain and extra trouble of feeding. The increase in price is the one uncertain factor, and gives to cattle feeding that feeling of insecurity which is so trying to the novice, or the farmer who has rent or interest to pay. For the season of 1874–5, I obtained an advance of three cents per pound over cost, but for the season of 1875–6, with 20,000 pounds of beef on the meadow, I cannot now realize more than cost per pound, and probably not that.

Much of the profit depends upon the manner of feeding, and hence it will not be out of place to devote some space to this point. Having a pair of cattle scales under the barn, I have been able to try many experiments, and test the weight of the cattle as often as was desirable. Careful experiments with different amounts of meal have convinced me that many feeders, in their anxiety to fatten rapidly, often overtax the digestive powers of their animals and throw too much of the profit into the manure pile, in the form of undigested meal. While I am willing to admit that the digestive powers of different animals may vary very much, yet I do not think that the average steer of from 1,100 to 1,200 pounds, can properly and profitably digest more than eight quarts of pure corn meal (or its equivalent in oats or bran) per day. After repeated weighing, I find that early in the winter even that amount must be reached very gradually, or loss will ensue. If the animal is suddenly changed from pasture to dry food and meal, it will require some time to "start" him, and it will take nearly as long to start him on eight quarts as when commenced on half that amount and gradually fed up to the full mark.

These and other considerations have led me to adopt what is known here as the "long feed," often extending (on grain and pasture) for the greater portion of the year, and, in the case of my greatest profit, for thirteen months. Buying cattle weighing about eleven hundred, in good order in September, put them on good, natural pasture, with occasional change to clover, and after the first heavy frost, supplement the pasture with a few quarts of meal, bran, or soft corn; the amount may be gradually increased up to the maximum amount of

eight quarts per day, but this should not be reached before New Year's. One of the more important secrets of this plan is to make all radical changes gradually. If the feeder gives the cattle no corn until they are fastened in the yard for the winter, and turns them out on grass suddenly next spring without continuing the meal, he had better not adopt this plan, for, by the above course, he will lose from four to six weeks of feeding. Cattle changed suddenly from pasture to corn fodder, hay and meal, though fed ever so much, will show no gain in weight for several weeks, and if the meal and dry food are changed to the succulent pasture of early spring without meal, the scales will probably show a decrease in weight after two or three weeks' grazing.

Most feeders deem it best to sell out of the yard in the spring, even at some loss, rather than turn out to pasture and take the risk of this "stand-still" time. By turning the cattle out in a small lot for an hour or two each day, and gradually increasing the time and quality of the pasture, keeping up the full feed of meal for two weeks after they refuse hay, I find I am able to put on a greater gain in weight than at any other time of year. My most trying time is in the fall, when the grass has lost most of its nourishment, and the stock is not satisfied with dry food, but even under such circumstances I have been able to add over one pound per day. Cattle are like growing corn, there is no such thing as standing still; if they do not indicate a steady and gradual gain, there is something wrong, either in the food or manner of feeding, and to insure profit it must be looked into at once. One advantage of this plan is that if the markets are good, the cattle may be sold out of the yard in the spring, or they may be turned on to pasture and sold at any time before September. Another advantage is that the pasture may be saved during the most critical time, (July and August,) and thus make an increase for the fall and next spring.

Hints for Calving Time.

A correspondent of the *Country Gentleman* says:

The troubles which attend the calving time of cows are oftenest and best met in advance by the ounce of prevention, which is better than the pound of cure, or the many pounds of attempt to cure. Especially is this true in the case of heifers with their first calves, when it is all-important to establish a good and healthy habit of coming in right. Old or middle-aged cows, which are well established in good habits of this sort, may be left to go through by themselves, after having been carefully tended in the main operations of feeding and keeping from exposure to cold and wet. But the heifer is entering upon a new experience, which will subject her vital forces to the most extreme tension. A general carefulness in the treatment of all the breeding cows should be rigidly enforced. They should be kept from all sorts of violence and from the fear of it; they should not be made to strain or jump in getting over bars, fences or water gullies; they should not be made to travel faster than a walk; they should not be roughly spoken to; they should not be crowded and jostled among other cattle, or subjected to the pushing or hooking of others; but in all ways they should be handled gently and be made to feel that their master is their friend.

The swelling udder of the heifer should be carefully watched in this, its new experience, the most important function of her existence, since, without a good bag, she will be of small account as a cow. In the case of heifers and cows which come in early in the season, there is less danger of inflammation from a too great flow of milk than in those which come in when grass is abundant; but this thing should be attended to at all seasons. If the udder is full and hard before calving time, and is likely to become inflamed, the best thing to be done is to draw off some of the milk before resorting to outward applications. If no milk can be drawn, in consequence of the bag having become hard before it was attended to, it should be carefully bathed with warm water, in which a little salt has been dissolved, or in a warm, weak soapsuds. An ointment of hog's lard and cream, or fresh butter with camphor in it, may be rubbed on the bag and teats by the hand.

If everything seems to be going on all right with the animal, it is best not to interfere with the healthy process of nature, only to provide nutritious food, dry beds and shelter from the cold storms. If it seems necessary to administer internal preventives or remedies for milk fever, the most approved medicine among our dairymen is a solution of saltpetre, two teaspoonfuls a week for two or three weeks before calving, given as a drench. Plenty of pure water to drink, as well as plenty of good food to eat, is a staple item in the care of cows at the time of calving, as well as at all other times. Cows which are in high flesh are most likely to be troubled with milk fever.

Immediately after having dropped her calf, the cow should be treated to a pailful of warm, thin mush of mill feed in water, which will assist her vitality to expel the afterbirth, and enable her to go on with the motherly care of her calf, which she knows how to do, and in the doing of which she should not be meddled with, if the calf is able to get upon its feet and go for its dinner.

Veterinary.

Hog Cholera.

Professor Law, of Cornell University, in commenting on one of the many "sure cures" for hog cholera, says:

When tried in a sufficient number of cases, and extending over a series of years, all these boasted specifics have hitherto broken down. Examples, which might be very greatly extended, imply that a sound mixed diet is of great importance in maintaining a healthy activity of the various organic functions, and a vigor to a large extent antagonistic to this and other diseases, and that a somewhat similar immunity may be secured by the use of tonics, antiseptics, and gently stimulating agents. But if we rest our faith upon any or all of these as sure cures or preventives, we shall only pave the way for disappointment whenever the disease takes on an unusually ma-

lignant type. Thus, in spite of the protective power of a partially milk diet, as above mentioned, how often does the disease prevail most disastrously in the herds of cheese and butter factories, and notwithstanding the good effects of an occasional meal of flesh, we find the most extensive losses among pigs that are largely carniverous (flesh eating) in their habits.

Keep your hogs clean is good advice. Protect them from the hot, reeking bed of manure and close sleeping place, where the emanations from decomposing dung, urine, straw and other organic matter are added to those of their own skins and lungs when huddled together in great numbers. See that both food and water are clean, in the sense of being free from disease germs and from the microscopic particles of decomposing organic matter which, within the system as well as outside of it, furnish appropriate food for the disease, poison, and favor its increase, while they depress the vital powers and lessen the chances of the virus being thrown off. No less important is the purity of the air, since the delicate membrane of the lungs, perhaps more than any other, furnished an easy mode of entrance for any injurious external matter. Finally, purity of the blood can only be maintained by a healthy functional activity of all the vital organs, which insures the perfect cleanliness, the poison, even if generated or introduced, will be virtually starved out as surely as an army in a closely-besieged fortress. But it will be observed that this implies the separation of sound from diseased animals, and the free use of disinfectants (solutions of sulphate of iron and chloride of lime, fumes of burning sulphur, etc.,) to purify the air and other surrounding objects, as well as the simple clearing away of filth. And it is here that the pork raisers are most frequently at fault. Fifty or a hundred pigs are allowed to crowd together in a filthy manure heap, a rotten straw stack, or under a barn subjected to the droppings of other animals, as well as their own products. Their feeding troughs and drinking water are so supplied that they can get into them with their filthy feet, and they must devour the most obnoxious matter or starve. If, under this abuse, disease is developed, the healthy are left with the sick, as "they will all have it any way," and the result is usually a clean sweep. When hog cholera exists, the sick should be placed by themselves under a special attendant, and under the free use of disinfectants. The healthy should be carefully watched, and on the first sign of illness, as increased temperature, to be ascertained by the introduction of a clinical thermometer into the rectum, they should be at once taken from the herd and carefully secluded. This, with active disinfection, will enable the owner to cut short an outbreak, and save perhaps the great majority of an already infected herd. Again, the sale of animals from infected stock, to be removed from the premises alive, should be severely punished, and the disinfection of the buildings where the stock have been should be imperative. We shall obtain the greatest success with this disease when we treat it as a contagious malady, and whenever it is found to exist give our main attention to prevent the further generation and dissemination of the poison.

Horticulture.

Potomac Fruit-Growers' Association.

June Meeting.

Editors American Farmer:

On exhibition were of *Strawberries*, C. Downing, Dr. Hexemer's Seedling, Mountain Beauty (a seedling of the Potomac region of great promise,) Fillmore, Monarch of the West, Boyden's 30, Triumph de Gand, Star of the West, Wilson's Albany, Agriculturist, Seedling Eliza, Champion, Jucunda, Napoleon III, Cowing's Seedling, President Wilder, and Col. Cheeney. Of *Cherries*, E. Richmond, Empress Eugenia, Black Eagle, White-Heart, and Belle de Choisy. Of *Apples*, some well-preserved specimens of Tukesbury Blush, splendid Roses, Gladiolus, etc.

JULY.

On the tables were of *Pears*, Hosenschenck, D. d'Ete, and B. Gifford, none of which were quite matured. Of *Mulberries*, Downing's. Of *Gooseberries*, Utah Seedling, Houghton, and Downing's. Of *Currants*, Long-branched Red, R. and W. Dutch, Victoria, Prince Albert, W. Grape, and W. Bologna. Of *Peaches*, E. Beatrice, E. Louisa, E. Rivers, and E. Hale. The two first named had been in market for two weeks; the last was not quite matured.

Of *Apples*, Astrachan, Harvest Rose, Red June, Strawberry, Hagloe, Edward, Summer Pearmain, etc., etc.

Prof. Howland exhibited a model of "The Regulator Wind-Mill," one of which he had erected on his farm. It is self-regulating; so that the harder the wind blows, the more it don't go. He thought that this was just the thing for every farmer. It is manufactured at Marshall, Mich,

Prof. Brainard, of the Patent Office, had an interesting paper on the "Food and Diet of Plants," the point of which he expressed thus: "The sources of plant-food may be gathered from the following synopsis and contrasts: Plants feed upon carbonic acid; animals return it to the air. Plants supply oxygen; animals withdraw it. Plants decompose carbonic acid, water, ammonia, etc.; animals produce them. Plants produce nitrogenized compounds,—albumen, gluten, caseine, etc.; animals consume them. Plants produce non-nitrogenized compounds,—starch, sugar, gum, oil, and vegetable acids; animals consume them. Plants endow mineral matter with the properties of life; animals deprive them of these properties. Plants impart to chemical atoms the power to nourish animals; these reduce organic matters to a condition to support plants. Plants convert simple into complex compounds; animals reverse the process. The plant is an apparatus of deoxidation; the animal of oxidation. The plant is a mechanism of construction; the animal one of reduction. The plant absorbs heat, electricity, etc.; the animal produces them.

Hence we infer that animal excretions, especially urine, afford most valuable food for plants; and our large cities are impoverishing the country by the emptying of their sewers into the rivers. The time will come when this

wanton waste will be stopped, and the contents of our sewers utilized. A convenient way of saving this liquid manure is to put it into a cask, and deodorize with dry earth or coal-ashes, and a valuable fertilizer attained in large quantities."

In conclusion, he said: "I read in the last number of the *Scientific American* that two ounces of kerosene oil to six gallons of water make an excellent fertilizer; and also an anti-dote to the ravages of insects. Apply with a watering-pot between the rows of plants or around the trees." G. F. NEEDHAM.

Washington, D. C., 1876.

Grape Management and Pruning.

The *Massachusetts Ploughman* gives the following account of the plan pursued by a Mr. Blanchard in the cultivation of Concord grapes:

On a favorable soil, but in an exposed locality, he has ripened, year after year, on each of his well-grown vines, from twenty to twenty-five pounds of grapes, in clusters weighing from sixteen to thirty ounces each. He grows no small clusters, and using only ground bone, ashes and plaster of Paris as fertilizers, spread broadcast on his land, his vines continue perfectly healthy. His success depends upon no local advantages which may not be found in almost every garden or farm. His method is as simple as it is successful. His ground was prepared as if for corn. In rows eight feet apart, running north and south, good layers are set eight feet apart. The roots are carefully covered about four inches deep; the surface of the ground kept level and free from weeds by a light cultivator or otherwise. The work of the first two years is to grow good strong healthy roots. To this end, a single cane is grown and tied to a stake, pinching off the end if it grows too tall and slim. After the leaves fall, cut this to the ground, leaving only one or two buds, from the better of which to grow a similar one the second year. This is to be treated in the same manner, except that in the fall it is to be cut eighteen inches from the ground.

The third year, a trellis running north and south should be erected, the lower rail or wire twenty inches from the ground, with two above, nine inches apart. No. 15 galvanized wire is the best for this. From the two upper buds on the cane, grow two shoots in opposite directions on the lower wire, pinching off the ends when they have grown four feet. These are to be permanent arms, never allowed to grow longer; but on these arms allow laterals to grow ten or twelve inches apart; tying them to the upper wires, but pinching them back occasionally to make them grow stout. They should not grow much above the upper wire. If shoots should come out of these, they should be pinched off in the same way. At the end of the season there will be two strong arms, each four feet long, with eight or ten laterals bearing good strong fruit buds. After the leaves fall, prune the laterals, leaving only two buds on each, with the auxiliary or arm bud at the junction.

In the spring when the buds start, save the arm bud and the better one, on each lateral, rubbing off the other. Let the arm bud bear only one cluster of grapes, the other two. When these shoots have made three leaves beyond the blossoms, pinch off the last leaf and the blossoms, except the three clusters above named, always saving the best clusters. They should now be tied to the second wire. When three more leaves are pushed out, pinch off two of them; do the same if shoots come out of these.

This is to be continued through the season, allowing the laterals to grow to the upper wire. Pinch out everything else that starts from the vine. In the fall there will be two laterals and three good clusters of grapes at each joint of the arms. The vines should always be kept in this shape, with no longer arms, no more laterals and no more clusters of grapes. It is all the roots will bear and continue healthy. In order to keep the vine in this shape, prune in the following manner: Cut the lateral which grew from the upper bud and bears the two clusters, back close to the arm, and prune and treat the other one just as the year before. By letting the lateral which grows from the arm bud bear but one cluster, it will give stronger buds for fruiting the next year. This method of pruning directs the whole root power to the production of fruit and fruit buds, and avoids the unsightly spurs which deform a vine; equalizes the labor of the vine, producing uniform results, never overtaxing it one year at the expense of the next.

Culture of the Quince.

N. Ohmer, of Dayton, Ohio, contributes to the *Country Gentleman* his experience in the care of quince trees: Some ten years since, I began to turn my attention to the cultivation of fruit, for pleasure and profit, and the then neglected quince I made a specialty—planting three-quarters of an acre, at ten feet apart each way. The fourth year after planting, I sold enough quinces to pay for the trees and their cultivation; and each year since, with but one failure, I had good crops, of course yearly increasing in quantity, and I might say also in quality. The latter, no doubt, is on account of the improved cultivation and fertilization they receive.

The first year I offered quinces for sale in quantity, I found a difficulty to dispose of them, as it was then known only to a few that the quince was one of the most delicious fruits we had for stewing and canning, as well as for jellies and preserves. Customers annually increased their orders, so that I last season disposed of my crop of about three hundred bushels, from the three-quarters of an acre, at from $2.50 to $3 per bushel, net.

Those of our readers who attended the Ohio State fair last fall, when passing around fruit hall, will remember the pile of quinces that swept all the premiums then offered on them. Those were mine; and I could have shown many barrels of the same kind.

I was informed, when I planted my first, that ten feet each way was the proper distance to plant them. I obeyed the rule, and for the last few years the limbs have grown into one another, so that it is almost impossible to get through the orchard. I have since practiced,

and would unhesitatingly recommend fifteen feet as near enough to plant the quince in good soil.

The tree is quite handsome when properly pruned; cutting out all interfering limbs within the tree, and cutting back such limbs as grow out of proportion. I spade the ground once a year, early in the spring; scatter my coal ashes, about a peck around each tree; then, again, the same amount when the quinces are about the size of a walnut, half grown. Salt is a special manure for the quince; the best investment I make is the money I pay for the salt I scatter under my trees.

The Orange is the best and the first that ripens with me. Rea's Mammoth I highly prize, on account of its large, smooth and handsome form, beautiful color and good quality. The Pear quince with me grows of good size, ripening after the Orange and Rea's; and prolongs the season until cold weather; would not recommend the planting of them largely. My quince orchard now contains about five hundred trees, most of which are yet young.

A Curious Freak in Peach Culture.

Messrs. Editors American Farmer:

I send you a nut for the pomologists. The much-derided Hale's Early Peach has, greatly to the astonishment of fruit-growers, this season developed traits of superior excellence in size, flavor, and keeping qualities; ripening through to the seed, and keeping well in transit from this place to New York and Boston. This may be explained by the excessive hot and dry weather prevailing at the time of ripening; but there has been another freak of this peach, on a score or more of trees in the orchard of my son, E. M. Wilkins, which, to me, is most strange and unaccountable—it is the production of fruit like the sample sent, growing on trees producing at the same time the ordinary Hale's Early Peach.

This fruit is most assuredly a nectarine of fine size, and superior quality, better than any Elruge that I have ever seen when grown under glass, with the most careful culture.

Show the fruit to my friend Brackenridge, as I hope for some light from him.

There is no mistake about this fruit coming from the same tree with the ordinary Hale's Early.

This year is the second cropping of the trees, and all of the fruit is of fine size and quality; last year their fruit was worthless.

I have always thought Hale's to be a hybrid of the nectarine, and this going back after so many generations is to me a puzzle; but, horsemen say "blood will tell," and original traits crop out; why not in fruit, as well as horses?

Yours truly, EDWD. WILKINS.

Riverside, Kent Co., Md., Aug. 1, 1876.

[The peaches sent us by Col. Wilkins very closely resemble nectarines in appearance and flavor. The skin is not only smooth, but it has the waxy glaze peculiar to that fruit, and the flesh has its noyeau flavor. The exceptionably fine quality of Hale's Earlies was general through the peninsula, and the peculiarity as first noted by our correspondent was afterwards found wide-spread.

The nectarine is supposed to be a variety or sport from the peach, and we have heard of instances where nectarine trees have produced peaches. For the reverse to happen is anomalous, and we should be glad to hear from any of our readers who can suggest an explanation.

We find in the proceedings of the Elmira Farmers' Club, August 26th, reported in the *Husbandman*, that a Mr. Billings exhibited fruit showing the same characteristics as that referred to above. The twigs were fresh and vigorous, "bearing fruit in appearance like nectarines.—The skin was like that of plums, and the stone was like that of peaches. These specimens were taken from trees in the city, three of which came up in a garden as volunteers, and all have fruit of the character described."—*Eds. A. F.*]

The Early Peaches.

Mr. Meehan, having tested the following eight kinds of early peaches, all grown within sixty miles of each other, classes them as follows, as to earliness, quality and size; the result being, of course, subject to future revision:

Name.	*Earliness.*	*Quality.*	*Size.*
Downing	1	3	5
Saunders	2		4
Alexander	3	2	3
Musser	4	1	2
Amsden	5		
Beatrice	6	4	6
Wilder	7	5	1
Hale's Early	8		

Ornamental Planting.

Mr. Meehan in the August *Gardener's Monthly* discusses the method of so planting a place as to make its natural character most attractive, while studying not only the cost but its future development. He says:

In all suggestions for the improvement of grounds, the subsequent cost of keeping in order should be studied well. This is the rock whereon so many strike. Walks and roads are particularly expensive to maintain, and should never be made without there is an evident necessity for them. Shady grass walks, with masses of flowering shrubs on each side, and kept mown a few times a year, are as pleasurable parts of a pleasure ground as can well be provided, yet we very seldom see them employed.

The great fault with our gardening is, that we follow too much after foreign styles. In England, for instance, they have fine evergreens, but deciduous shrubs do not do well. They have, therefore, to make their places gay by bedding plants. Our country is the paradise of flowering shrubs, and foreigners, when they come here, are amazed at their beauty. Most beautiful effects can be produced by massing them—beautiful effects that can succeed each other from

spring to fall, and indeed continue to give interest through all the year. But we blindly ignore our own advantages, and persist in following English styles of bedding. We cannot put out a flower till May. We have to water and water to make them grow. By August, when it is too hot to enjoy them, those which have fought their way through the summer heats are tolerable; and then the first September frost takes them off. We have their blackened leaves till Christmas, and bare ground the rest of the time.

We are quite sure that much more satisfactory gardening than this can be made out of nice green grass and comfortable shade trees—clusters of clematises and other flowering vines that defy our heats, and masses and designs of shrubs and dwarf, colored-leaved plants, with hardy herbaceous plants mixed. And then there is the great American idea underlying all this—most beautiful grounds maintained at little cost.

It is a very good time to think of these things. Autumn will soon be here, when they can be put into shape for the next season.

Treatment of Young Hedges.

The agricultural editor of the *Philadelphia Press* offers the following on this topic:

Of late years a discovery has been made in the treatment of hedges, of supreme importance. It was the universal advice, and the general practice, to cut the plants to the ground at planting, and this part is still right. But the practice went further. The following summer the growth was cut back to make the shoots sprout, and perhaps the succeeding winter they are cut again, and next summer and winter, and so on; but this we know is all wrong. Not only is it wrong so far as the making of a good stout hedge is concerned, but it took a great deal of money and labor to attend to it; and it was very natural for the farmer to say that labor was his great bugaboo, and if he was to be continually bothered in this way he would rather pay double or treble for a lumber fence, and be done with it.

Many who keep to the faith in constant trimming in the hedge's youthful period, found to their sorrow that notwithstanding all their labors there would be holes which would admit dogs, and in time larger animals, and only those who had knowledge and skill enough, and time enough to boot, to look after their hedges, kept on with this way of making them.

The splashing system followed this. In this way the plants were allowed to grow straight up for three or four years after planting, and then each one cut half through near the ground and bent over. This presented a series of horizontal stems along the hedge line, and made successful barrier against intruders. Only half cut they live, although making of course a weakened growth; and from below the cut a lot of sprouts come up, which help to thicken the whole mass. But although this way is superior to the old-fashioned plan in this, that it involves no labor for the first two or three years, the splashing itself is a laborious process, and moreover the result does not always prove a perfect hedge.

The new plan was foreshadowed in a speech by the agricultural editor of *The Press* at Harrisburg some six years ago, and of which an abstract is given in Pennsylvania Fruit-Growers' Society's report. It was there shown that the idea that pruning strengthened the tree was wrong. The branches seem to grow more vigorous after a pruning. It is true, but a few years of this treatment shows the state of affairs. A dozen willows left to grow unpruned will make trunks of enormous size, and probably last fifty years; while the same willows annually cut down for basket-making purposes, die out in twenty-five, and hardly ever make a trunk more than a foot or so in diameter.

Knowing, then, how pruning weakens, we apply the knowledge to hedge culture. We want to weaken it after it has been made into perfect hedge, but not before. For a few years we desire to give it all the vigor possible. This is obtained by leaving it entirely alone. In this way the roots become very strong after a growth of four or five years. Then in the winter or the spring before the leaves have pushed, we saw or chop it off close to the ground. The result is a mass of strong, vigorous growth which surprises every one. It can be mowed into shape with a scythe the next summer, and a perfect hedge is made at small cost.

Pear Blight.

Messrs. Editors American Farmer:

I have read with interest the communications of your correspondents, Captain Snow and Nansemond, and am tempted to add my experiences to that general stock of information on this subject, which may some day lead to a correct knowledge of the cause of this fearful disease.

We have in our orchard three pretty distinct forms of pear-blight—first, the bark-blight, a disease of the cortical or outer bark of the body and larger limbs of the tree. This form is first observed in crescent-shaped depressions around some extinct or undeveloped bud, killing and shrinking the outer bark, till it becomes as hard and unyielding as seasoned wood. When this becomes entirely or nearly around the trunk or limb, it interferes with the circulation of sap, and death ensues. In passing, I might say we have found partial relief by making frequent longitudinal cuts, with a sharp knife, through this unyielding bark. The cuts open, and room is afforded for the inner bark. The second form of blight is the one described by Nansemond, affecting the twigs and smaller branches very similar to the apple-twig blight, not often proving fatal, or even very serious with us. The third form is the common fire-blight, killing whole trees without warning, and apparently in a day's time.

These different forms seem to have no special preferences for any variety, or to more seriously attack trees in any peculiar location. Our orchards include high and low ground; some portions quite exposed to winds; others again almost surrounded by perfect evergreen screens 20 to 30 ft. high; some under cultivation, and a few in sod. Yet I cannot see that these conditions have anything to do with causing the blight, or rendering the trees more liable to its attacks.

I have, however, noticed this: that whatever treatment secured a good growth of wood will develop buds and leaves, and enable the trees to retain their foliage to the last of the season; *that treatment* struck at the *cause* of the disease and afforded valuable relief. Acting under this belief, we give our orchard a thorough cultivation in early spring, thereby securing a sufficient root—pruning to make a good supply of feeding roots, which we plentifully supply with suitable food, in the form of potash and phosphate of lime. We have found this to make a healthier growth of wood, with better matured cells, than the rank growth made by the use of nitrogenous manures.

We apply these mineral fertilizers in the form of muriate of potash and acidulated South Carolina rock as the cheapest and most available form for us. Our orchard will attest today, by its luxuriant appearance and bending branches of perfect fruit, that our treatment is judicious, and the dreaded blight under *partial control* at least. Reasoning from our experiences, therefore, I am convinced that one cause of pear-blight is deficient mineral plant-food, imperfect manner of applying fertilizers to the trees, and general want of care and intelligent management.

The fungoid theory, as accounting for the different forms of pear-blight, is no doubt true as the secondary cause. Fungi can be discovered in all forms of blight, but they only flourish on diseased vegetable structures, and the weakness that made the fungi possible was a prior disease.

JOHN I. CARTER.

Experimental Farm, West Grove, Pa.

Bedding Plants.

Editors American Farmer:

Gentlemen:—August is again here with its luscious fruits and gorgeous flowers. This, the eighth month of the Julian Calendar, has been aptly termed the pivot of the year—the month in which the gardener may see the full fruition of his hopes, or console himself as best he may for any measure of disappointment. In fact this is the month when deficiences of the present season must be noted and plans for the future year settled.

In the matter of bedding-out, on the English system, it must be admitted that we are remarkably deficient in some colors which in the humid atmosphere and temperate clime of that island may be used with excellent effect. It must, however, be conceded that in sub-tropical gardening the advantage is on our side, and yet not quite to the extent some British gardeners are apt to fancy, which, if space permitted, we would explain.

It is pretty well understood amongst the general public, what are the kinds or classes of plants most suitable for bedding purposes, but it is by no means satisfactorily established even amongst gardeners what varieties of such plants are best suited to the purpose in question. We think this matter might be advantageously brought before the Maryland Horticultural Society, say at the monthly meeting next after the Annual Exhibition. In the first place, I would ask, have we a *pink* bedding Geranium? have we anything in this line in advance of Geranium Christine Nillson? and have we *any* variegated Geraniums exclusive of the bronze section, that will endure bedding-out and maintain an appearance of even shabby respectability? What can we use in blue, orange, yellow, &c.? True the latter colors may be found in the Zinnia, but from its straggling habit and coarse flower, it is entirely inadmissible for such a purpose, and can be used only under exceptional conditions.

A very large proportion of Geraniums which do well considerably north of us are poor enough here. What we want to understand more fully is, which are the best well-proved varieties of all classes of bedding plants, good and effective combinations, &c. &c. N. F. F.

Autumn Work in the Garden.

We have the most beautiful autumns in the world. The mellow haze, the brilliant foliage, the ripening nuts, form a picture hung in memory's choicest niche. Our springs are short and uncertain, and certainly unpleasant. Cold, rain, snow, mud, with an occasional fine day just to remind us what spring might be if it pleased, is our usual fare. All important changes in the garden, and as much work as possible, should be done during the dry, pleasant weather of autumn, and we, therefore, take this opportunity to present a few hints on the subject, knowing that many let this favorable season pass away through forgetfulness, which they have afterward reason to regret.

Do you design to make any *changes in walks*, or give the old ones a *new coat of gravel?* There was something of the kind talked about in the spring, I remember, but it seemed as if we stepped from winter to summer, and work pressed, and it was not done.

Some of those *vacant beds* would look neat all autumn and spring, if they were dug up and raked over. Indeed, there are many weeds now growing in them that will ripen their seed unless they are cared for, and give you more trouble than it would to remove them, and put the beds in proper condition.

You have tried to make a *lawn*, I observe, but did not succeed very well, and you think you will have to "sod it." That is not necessary, and is pretty expensive. If you prepare the ground and sow the seed in September, so that it will have the benefit of fall rains, you will have as pretty a lawn as you can desire by the middle of next June. One of my neighbors, Thomas Leighton, Esq., made a lawn of about two acres in September last, and in May it was almost a perfect lawn. He covered it in the autumn with coarse manure, and this afforded protection to the very young roots, and was an advantage, but it is a dirty, useless practice to make manure yards of old lawns. Four bushels of grass seed to the acre for a quick, good lawn, and any one who sows rye or oats or turnips with the seed to *protect* it, ought to be sent to the lunatic asylum.

Why you have no lawn? Too late. The hot, dry weather of June set in before the seed had obtained any root-hold of the earth. If you sow in spring, do it as soon as the ground can possibly be got ready. A little white clover it

will be well to sow with the grass, and a few ounces of sweet vernal grass will give a vanilla flavor to an acre. Do I suppose the seed you sowed for grass seed was pretty much all weeds? No, not at all likely. You have a crop of weeds, to be sure, but suppose you had planted corn or potatoes instead of sowing grass seed, and had not used the hoe, don't you think you would have had a pretty good crop of weeds? Most of our soils are thickly seeded with seeds of many kinds of weeds.

The *Herbaceous* plants, after growing a number of years, in one place are benefited by division and removal. The *Delphiniums*, or *Perennial Larkspurs*, as they are commonly called, the Hollyhocks, and Pæonies, and Canterbury Bells, and Perennial Poppies, and Aquilegias may all be divided and replanted in autumn. Clumps of Lilies can also be taken up and the bulbs reset, just as soon as the leaves begin to show signs of ripeness by turning yellow.

All this is necessary, and may all be done, and yet the garden in the spring look very dull and uninteresting. After being driven from the garden for nearly six months, in the early spring we are hungry for something that shows life and beauty, and we watch with eagerness the early opening leaf, and are in ecstacies over the first expanded flower. Upon the *Holland Bulbs* we depend almost entirely for our early spring flowers. The *Snow Drop* comes as the snow leaves, to be soon followed by the Crocuses, the Tulips and the Hyacinths. A garden without a few beds of these Hardy Bulbs is really only half a garden, for it will begin to be beautiful only when half the season is over. Don't put off making beds of Tulips and Hyacinths until spring, as many do, for bulbs cannot be obtained at that time that will give you any satisfaction. Every year hundreds of our friends neglect this caution, and send for Tulips and Hyacinths about the time they are in flower.

Your *Lilies* did not all flower the first season, as you expected. Well, Lilies have perennial roots, like a tree, and removal shocks a Lily, somewhat as it does a tree, but not so severely. Altogether the best time to plant Lilies is in the autumn, and then in most cases you may secure flowers the first season, but even then not always.

What can we do in the way of sowing seeds in the autumn for spring flowers? That depends upon the climate. In the south very many of our annuals may be sown in the autumn or winter, and some will give their best bloom in the latter part of winter or early spring. A little time back we thought the Pansy would never succeed in the South; but for two years past the finest, largest Pansies we ever saw, either in this country or Europe, were sent us in the latter part of the winter from South Carolina. Just imagine Pansies nearly four inches in diameter, firm in texture and of solid colors. We received samples of Pansies, last winter, from more than a dozen places South, and we are glad to know that our Southern friends have such a splendid winter flower. In the North the Pansy will do well with a little protection, and will take advantage of even a week's thaw to give a flower or two.

There are some flowers, natives of mountain glens and shady vale, that do not succeed in the bright sunshine of summer; but if we can get them to bloom in the spring, do so with all their native beauty and vigor. The *Nemophilas* and *Clarkias* are striking examples. If seeds of these are sown in the autumn, they will flower in May and June. A few seeds scattered in the herbaceous border, or among the bulbs, will give a good account of themselves. They love a cool place, and partial shade is not objectionable.

We have a few hardy annuals, like the *Candytuft*, that may be sown in the fall. In a sandy soil the Portulaca may be sown in the autumn, but not in a damp or heavy soil. Seeds of Biennials and Perennials, if sown early enough to produce strong little plants in the autumn, will flower the next summer.

How can we protect plants that are tender to save them from injury in the winter? All bulbous plants that die down to the ground every autumn, may be protected by covering the surface with leaves, manure or straw; plants that retain their branches, and are hard-wooded, but no leaves, may be protected with a straw covering, but plants that retain their leaves, or have succulent branches, will not bear thick or close covering. They must have air, and evergreen boughs, or something of the kind, as a shelter from severe wind, is about all the protection they can endure without injury.—*Vick's Floral Guide.*

Destroying Insects on Greenhouse Plants.

Messrs. Editors American Farmer:

We have lately received a package of somebody's bug-fly-thrip-red-spider-tee-total exterminator, and tried it "according to directions." Having a batch of Calla Lilies, which we intended to rest—to save the trouble of attending them, and not because we think such a course of treatment necessary—and which, through neglect, had become well infested with red-spider, we determined to test our new ten-horse-power bug-killer upon these. In two days the lilies looked very much as they might be expected to look if a red-hot hail storm had passed over them. Haven't heard from the spider. We next tried it on some Fuchsias we cared little about; with the same result. All this we could bear without a murmur, but when we discovered that some of it had accidentally gotten upon the foliage of a Dendrobium Nobile, which we *did* care very much about, we wished that same stuff right into that place the road to which is said to be paved with good intentions. It is a noteworthy fact that for years the natural enemies to horticulture and gardeners have held the same relative positions. Sulphur and mildew antagonize when in contact, to the utter extermination of the latter. The same may be said of tobacco smoke and aphides; but the diminutive mongrel, called red-spider, could, we verily believe, smoke an Havana with as much gusto as can a street gamin his warranted "five-cent seed." We have ever found the prime mixture for cleanliness in glass-houses to be clear water and elbow-oil, well incorporated and thoroughly applied. N. F. F.

Floriculture, &c.—Sept., 1876.

By W. D. Brackenridge, Florist and Nurseryman, Govanstown, Baltimore county, Md.

This is the month in which people begin to enjoy the fruits of their floricultural labors: cool nights and refreshing rains causing flowers and foliage in the borders to freshen up and present their gayest garb.

The careful florist will watch for and preserve seeds of all valuable plants as they ripen, dry them before cleaning, in the shade when it is cool and airy; and we would say that this is the proper time to make notes on the habit and effect produced by any new plant which may have come into their possession; as well as to correct any mistakes that may have been made in the grouping of colors of both flowers and foliage in the beds; strong contrasts should be avoided, harmony is what should be aimed at; and any one visiting the centennial grounds at Philadelphia will there find good examples for their imitation, as well as many which an individual of taste will be ready to reject.

Where plants, as Bouvardias, Carnations, Abutilons, &c., &c., have been planted in the ground, and are wanted for winter blooming, these should be taken up and potted about the latter end of the month, observing to keep them in a close shady place for a few days after this work, before exposing them to the sun and drying winds; specimens of the various kinds of Habrothamnus, when treated in this way, are truly beautiful objects in the conservatory during the winter.

Advantage should be taken of the first favorable spell of moist weather to remove Evergreens, and in the performance of this work we would again urge the propriety of preserving all the roots possible, and not permitting them to become dry in the operation, observing to settle the earth well in about the roots; finish by filling in over this, and should it be deemed necessary, give a stake to the plant to keep it steady until it takes hold of the ground. Shade or deciduous trees can be transplanted, so soon as the leaves begin to fall, or change color. Such trees of this kind, now in a permanent position, and stand in need of pruning, should have this operation performed now, as the wounds made will, on the descent of the sap, heal over much sooner than if done later in the season.

Where Hyacinths and Tulips are grown in the open ground, and as October is the month they ought to be planted, the beds for them should be prepared beforehand, by digging in deep at least six inches of old cow manure, as all these plants delight in a rich, light porous soil. We also practice the dividing and planting out of such strong-growing herbaceous plants as Pæonias, Iris and Delphiniums; but in all such new plantations, the surface of the ground should be covered with a layer of decayed leaves or manure, to prevent the roots getting thrown out by frosts; and then, work of this kind done now lessens the spring labor, of which every gardener knows that at that season he has got more than enough; and we never could see any good reason why so much of this kind of work is deferred or put off to that season.

This is a good time of the year to drain land that is wet. We are a firm believer in under drainage, having seen so many benefits derived from its practice; and we favor the opinion that much of the cause of pear-blight has its origin in the stagnation of water about their roots during the winter. Tile drains alone do not always in compact clay lands answer the purpose; but the use of tiles as conductors, with a layer of small stones over them, is more satisfactory.

Greenhouse.

At this time, we know of no work more necessary to be done than the painting and glazing of the greenhouse or conservatory. Many dollars may be saved by attending to this work in time. See, also, that the flues are properly cleaned, and the hot water is in good working order. It is not good policy to defer this work until John Frost has paid you a visit. Whitewash the walls inside, and see that the staging is secure. By all means get at this season a good supply of sods and other earths to be composted with sand and manure, so that they may be ready to get under cover before winter for potting purposes.

All plants in pots that have been plunged out of doors during the summer should be lifted and replunged, so as to check the roots that may have passed into the ground; and in doing this, such as require larger pots should be shifted into them, and all requiring it ought to be neatly tied up to stakes; but try and avoid a multiplicity of the latter, as we frequently see half a dozen of these used where one would have sufficed, always remembering that more stakes than plants is not now the order of the day in plant culture.

Cuttings of Geraniums and Roses root readily at this season if inserted in sand in a cool frame, keeping the sash over them for a week or two, by which time they will be callosed, when air should be given.

To have good Pansies, Chinese Primroses, Cinerarias, and Calceolarias, the seed should be sown now, in shallow boxes or pans. Use a rich, light soil, and keep them in a moderate shade until such time as the plants make their appearance fairly above ground, then give them more light and air; and so soon as they can be handled, either place them simply into small pots or prick out thinly into other boxes.

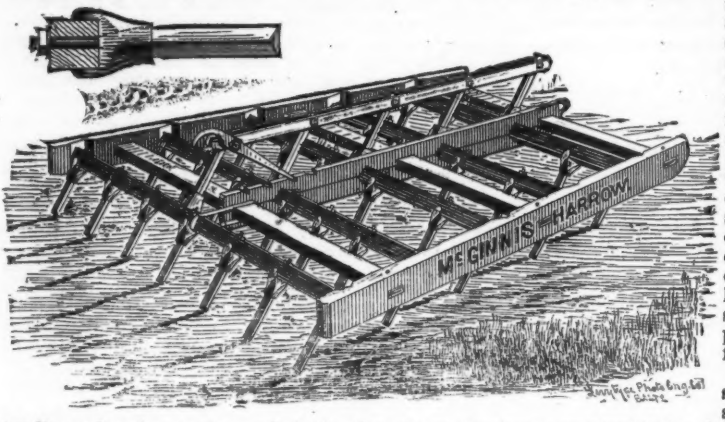
Repot all Calla Lilies, and withhold water from the Japan Lilies so soon as the stems begin to fade, and soon aftewards place the pots, with the roots on their sides, in a cool cellar, or under the plant stage. This practice should also be followed with Gesneria and Gloxinia tubers, with the difference, the temperature should be higher in the place where they are stored.

All tender and broad-foliaged plants should, towards the end of the month, be moved under glass; or before cold, wet days and high winds injures them; the hardier kinds, as Azaleas and Camellias, and such plants as Pittosporums and Laurestinus, can remain out much later, so as not to crowd the house early in the fall.

The McGinnis Harrow.

We have received a copy of the new circular recently published by its inventor, giving a description of this harrow. The pamphlet not only goes into some detail as to the mode of construction and the principles involved in its manufacture, but contains a chapter on the mistakes made in the use of fertilizers, which, with the other sections, may be read by farmers to advantage.

The harrow is an implement which has only lately begun to receive the attention its importance demands. The improvements embodied in the one invented by our friend Captain McGinnis strike us as valuable and practicable, and farmers of experience who have used it testify to its merits. We give a cut of the implement, which the inventor claims is so constructed as to secure the lightest draft and greatest durability. It is likewise so constructed as to dispense with lifting for cleaning.



The teeth are steel, of diamond-shape, broad, standing edgewise to the work, both edges sharp, the lower end double beveled to a broad *edge*, instead of a square or round *point*. When worn they are reversed, rear edge to the front.

They are instantly adjustable to *any* slant, which makes it absolutely *self-cleaning*, and adapts it to all purposes of pulverizing, smoothing and packing. The teeth cannot get loose, nor split the beams. They are drawn up by a screw tap, and held tightly in an iron sheath, inclosing their upper parts and clamping the beam, so as to prevent the breaking of teeth or splitting of beam.

It seems to us to be well adapted to general purposes.

The Apiary.

Changing the Situation of Hives.

It often happens that the beekeeper for some reason or purpose finds it necessary to get a stock transported to a new situation in the apiary before the dormant season arrives. One of the plans usually recommended, is to move it daily towards the intended site by short stages, of about two feet at a time.

Another and more efficient plan sometimes adopted, is to take the stock to a distance of not less than a mile, and after allowing it to remain there three weeks, to bring it home and set it on the stance prepared. Both these methods are attended with considerable trouble, but it must be apparent the difficulty of shifting a hive would be in a great measure removed if we could put its bees into the condition peculiar to a swarm. This is what we attempt to effect whenever we transport a stock from one side of our garden to the other.

Our proceedure is as follows: If the bees are in a common straw skep, we drive out half of their number with the queen, into an empty one—and put the driven bees on the old stance, and the skept, from which they are ejected, on the new, leaving them thus till the following morning. Then, before many bees are astir, we drive again the ejected bees, with their queen, into another empty skep, and place them for a few hours as near as possible to the hive from which they were first driven. These driven bees now act like a swarm, and, as they successively go out, examine and make themselves acquainted with their new situation. Towards midday we shake them out in portions on to a newspaper, and make them run into the original skep.

If a hive containing frames is to be shifted, let it, early in the afternoon, be carried at once to the place it is intended to occupy, and there opened. Look over the frames, till the one which has the queen is found. Take the frame to the vicinity of the old stance, and, by a jerk send queen and bees from it into a skep that has been used, and to which fragments of comb adhere. Adjust the skep on the stance, and restore the frame to its place in the removed hive. The skep will receive all the bees that are out in the fields, when they come home, and all the more aged bees that will return from the shifted hive, as soon as they discover the absence of their queen.

Early in the morning following, drive, as before, queen and bees in the skep into another empty one, and set them beside the frame hive, and join at midday.

If the nights are cold, to prevent injury to brood from only a small number of bees being left, the driven hive should be taken before dusk into a warm, dark room and kept there till next day.

This method of moving hives to a little distance is more convenient than any other we have tried, and we have often practiced it with success.—*Canada Farmer.*

Agricultural Calendar.

Work for the Month—September.

This month is preëminently one of preparation to the farmer. To make ready the land, to purchase and apply the manures, to select and clean his seeds, will largely demand his attention, whenever the seeding of the smaller cereals is a part of the season's labors. Especially now, too, is thoroughness required in the work to be performed. No after cultivation can make amends for the careless preparation of land, or the slovenly putting in of either fertilizers or seed.

Wheat.—Undoubtedly, even in soils where fertility is diminishing, the prime cause of the falling off in the yield of the crop, is the imperfect preparation of the soil. It is not only absolutely necessary that there should be present in the land the materials which are to furnish the food for the growth of both straw and grain, but they must likewise be so situated as regards availability and solubility that their appropriation by the plant is easy and certain from the very instant the germ ceases to feed upon the nutriment stored up in the seed-grain itself, and begins to appropriate nourishment from the surrounding soil. The aëration of the soil, its permeation by the rays of the sun, giving warmth enough for germination, and the presence of moisture sufficient to put into a shape suitable for assimilation the plant-food accessible to the roots of the plant—these are conditions which must exist at the very outset of its life.

Two important steps to secure these essential conditions are the removing of the superfluous water from the soil and its effective pulverization. Where the soil is clogged with moisture and where the stratum of the soil which makes the seed-bed is rough and lumpy instead of finely comminuted, the air cannot enter, the sun cannot warm, and the plant-food cannot be made available.

The securing, then, of sound land, well and deeply ploughed, and thoroughly fined, is the first step to raising good crops of wheat.

Another and hardly less essential step is to secure seed which has fully ripened and been carefully cleaned. Without this, the pains, time and expense of careful preparation are largely wasted.

The deepening of the soil and its thorough harrowing, which we lay down as indispensable to attaining success, do not, however, require that the bed, to which the seed is committed, should by preference be light or puffy. This, indeed, is rather to be avoided, and the application of the roller before the use of the drill is an expedient adopted to prevent this undesirable condition of the land. Puffiness of the soil, which is sometimes the result of turning under a too luxuriant growth of clover, and a similar condition ensuing from the adoption of the pea-fallow, are not promising of abundant yields. The course sometimes relied upon in England of driving a flock of sheep over wheat lands is taken with the view of obviating this puffy state of the land, wheat rather liking a firm solid bed, such as is thereby produced.

Deep plowing largely aids in securing escape of surplus moisture, with all the benefits thereby accruing, and fine pulverization of the soil qualifies its elements for dissolution and appropriation.

On the choice of seed, the local variety, tested by experience, is in the main the best to stand by; but it is to be assumed that every intelligent farmer will occasionally test the suitability to his own land and situation of newer kinds which may from time to time be offered. This test may be on a scale at first limited in its extent, but it may be widened, as a certain variety proves itself hardy and productive; the benefits to be thus derived from the acclimation and a process of constant, careful selection of a promising seed being large and important.

As to the mode of seeding, the now accumulated and general experience points to the advantage of the employment of the drill. The advantages are well arrayed in the communication on another page from Mr. Lawrence, who has been at considerable pains to gather statistics of the wheat crop worthy of being carefully read. The sowing of seed, the regularity of its deposit in its place, its exemption from heaving by frost when so put in, the propinquity to it of the fertilizer, are all benefits to be counted in favor of this machine.

To prepare the seed for sowing, pour it slowly into a barrel of strong brine, on which the smut balls will float, and from which they should be skimmed off. Then take the seed out and dust it over with powered blue-stone (sulphate of copper.) Some prefer to use a solution of the blue stone, say one pound to a gallon of water, and stir this among two bushels of wheat. In sowing broadcast, two bushels of seed is generally used to the acre; when drilled, from two to three pecks less.

In this section the bulk of our farmers seed from the 25th of this to the 10th of next month; some preferring to begin this operation considerably before the date first named.

For fertilizers the best are cheapest. Wheat, as with all the cereals, demands a liberal supply of nitrogen. Hence the benefit, especially in the fall, of ammoniacal fertilizers, as Peruvian guano and ammoniated super-phosphates. A good application is 100 lbs. Peruvian guano, 200 lbs. bone dust, and a bushel each of plaster and salt. Another is 250 to 300 lbs. of a reliable super-phosphate, which, if it contains no potash, is well supplemented by the addition of 50 lbs. of muriate of potash.

Rye.—As soon as possible now this crop should be gotten in, if not already done. Its usefulness as an early pasture for sheep and calves has been referred to before. Land not in good heart ought to have good dressing of some fertilizer—say super-phosphate, or bone dust, ashes, salt and plaster mixed. Of seed, from a bushel to five pecks is generally sown to the acre. As a soiling crop, giving the first cut of green food in the spring, its value is very great. When intended for that use more seed should be used, some good manure applied, and the crop gotten in as soon as possible.

Meadows.—Timothy needs a good soil, and one deficient in respect of fertility should have liberal applications of manures. Barn-yard manure, if abundant enough, will prove a valuable dressing. Ashes are well adapted likewise to this and most other grasses, and if some bone dust or super-phosphate be added, so much the better. Timothy sown by itself ought to be put in early, when half a bushel to the acre is not too much to sow. Of mixed grasses a mixture of the following will be found of general service: ½ peck timothy, 1 bushel orchard grass, ½ bushel each Kentucky blue and perennial rye grass, 3 pounds white clover, and 1 pound sweet-scented vernal grass.

Corn Fodder—When saved at all, ought to be carefully saved. Corn sowed for fodder is preferable cured early.

Turnips may now be sown in the earlier part of the month, and if the ground is in moderate tilth will make a crop.

Making Manure.—Lose no opportunity of collecting and composting materials for this purpose. There is on every farm at this season of the year a great mass of vegetable matter which can with advantage be turned to good account in this way, as so often recommended by us.

Vegetable Garden.

September.—Clear away all remains of summer crops, and see their places are not usurped by weeds. Such of the latter as have not formed seeds may go into the compost piles. All others are best burned. Fill vacant spaces by sowings of late crops, as far as may be, and tidy everything up for winter.

Winter cabbage are here sown about the 20th to 25th of this month, and set out in sheltered ridges about 1st November. Local experience should be consulted as to the proper time to sow seed, otherwise serious loss may be sustained by anticipating or delaying for even a few days. Cauliflower seed may be sown about the same time, and the plants wintered over in frames. Celery should be earthed up as it grows. Lettuce for spring use may be sown in a sheltered place. Spinach may be sown—give it rich ground. Turnips may still be sown. German greens may be sown till the middle of the month.

Gunpowder Agricultural Club.

Messrs. Editors American Farmer:

The last meeting of the Gunpowder Agricultural Club was held July 29th, at the residence of B. McL. Hardisty, I. M. Price foreman. The usual examination was gone through with, and was satisfactory. An extensive greenhouse, erected since the last visit, attracted attention, and was much admired.

The "half-hour" was taken up in discussing the proper time for sowing wheat. Jno. D. Matthews put that question to Jos. Bosley. The latter in reply said he would not sow in August if the weather were warm and dry. It would not hurt to sow in September, if the weather bade fair to be cool. S. M. Price thought north ground ought to be sown as early in September as possible. He would make two weeks difference between north and south ground. He was always of that opinion, but had conclusive proof of its correctness last season. Jos. Bosley said he agreed with S. M. Price in reference to that. (*q.*, put to Jos. Bosley)—Would you sow in August at all? (*a.*) No; the first of September is early enough for him. Early sowing suffers sometimes from the drought, and sometimes from the fly, though he has seen late sowing effected as badly by both, as early. He thinks the chances decidedly best in September. I. M. Price said he had a small piece sown in November which was as good as any he had; it was heavily manured. Ed. Scott asked whether we should have any regular time for sowing; should we not rather be guided by the character of the season? D. Gorsuch replied that he had found out from consulting his diaries that, without intending to set any particular time, he generally got to sowing from the 20th to the 25th September. It seems to be about the right time; is satisfactory to him. Corn ground he sows earlier—from 14th to 16th September. Jos. Bosley.—No doubt it is safest to choose a medium course in all we do. By sowing between late and early he had often escaped the fly. Ed. Scott said the time chosen by D. Gorsuch (12th to 25th September) is risky on account of the equinoctial storms.

Verbal crop reports were declared in order and taken up. These reports are set for the August meeting, and amount to a comparison of the results of the harvest, chiefly in reference to wheat and rye; so that any new facts of experience or observation bearing on the method of pitching the fall crops, the use of fertilizers, or the introduction of new varieties of seed, may be availed of by the members.

I. M. Price—Wheat—Sowed the Fultz with the drill. Six acres were manured alone; three, besides the manure, received 150 lbs. Whitelock's Vegetator. These latter gave him much the better yield of straw and grain. Clover hay gave him an average of 1½ tons; timothy 1½. Rye was badly filled.

W. W. Matthews—His wheat was light. Varieties sown, Fultz and Mediterranean; former did best; put in 1st September, with fertilizer; straw as bright and pretty as he ever threshed; yield 20 bushels (average.) Part was drilled, part broadcasted; no difference in yield. The same fertilizer (Hull, Matthews & Co.'s) applied to oats produced no benefit, though it acted well on wheat—quantity, 100 lbs. Mediterranean in corn ground was a light crop. It was drilled both ways, though the fertilizer was used but one way, with a marked difference in favor of the portion on which the fertilizer was used. He liked the plan of drilling wheat both ways in corn ground; it is done much better and more quickly.

B. McL. Hardisty—No oats or wheat. Rye well filled. Hay 1½ tons, average, per acre.

Jos. Bosley—Wheat he thinks will give him an average of about 20 bushels. Amber will do about 5 bushels better than Fultz per acre. The amber did not straw-fall as much nor die off so soon as the Fultz. All treated alike with Turner's Excelsior, applied through the drill. He used, also, ground meat and bone; will never do so again. Was gummy and sticky, and consequently did not feed regularly. It was beneficial.

His rye is of a good quality; straw fine; used fertilizer. Oats—never had better; drilled; no fertilizer; land lies high; yield is put at 40 bushels per acre. Hay—some good, some sorry; 70 to 80 tons from 65 acres. (*q.*) What variety of wheat do you prefer? (*a.*) No more Fultz; prefers amber.

Josh. M. Gorsuch—Wheat, about four acres. Prize corn acre made seventy dozens. Oats gave him 35 bushels per acre. Hay, average, 1 ton. No rye.

A. C. Scott—In wheat—16½ acres, sown October 1st, was lightly manured and treated to 150 lbs. Whitelock's Vegetator, except one acre, on which he used 180 lbs. Turner's Excelsior; no difference in yield; has made no test of the average; handled heavy and appeared well filled; variety, Fultz. Hay crop he puts at from 40 to 43 tons from 40 acres. Rye a poor crop; no fertilizer used. Oats good; drilled in; judging from the loads, will give him 35 bushels per acre.

Ed. Scott—His wheat handled heavy; thinks it is good. One field he manured lightly and drilled in (except on one acre) 50 lbs. Whitelock's Vegetator. Rye part good, part poor. He commenced to drill it in, but thinking he was not getting on enough seed, he stopped and broadcasted the rest—latter was best. His rye was quite patchy; parts in low places, not worth cutting. Oats, heavy; all went down; were drilled except on one-quarter acre. On the latter, they were sown broadcast and plowed in five inches with the furrow-plow—not worth cutting. [W. W. Matthews said his experience was just the reverse of this. S. M. Price thought the difference due to different nature of the two pieces of ground. Ed. Scott's, old land and low—W. W. Matthew's, high and new.] His hay varies as much as his rye; in some places it would go three tons per acre, in others not over half a ton. He puts the average on an area of 50 acres at 1½ tons.

Dickinson Gorsuch—Wheat 12 acres, Fultz. Ten acres fallow; once manured with 12 four-horse loads of compost per acre. Yield of dozens 536, at half bushel to the dozen, would give him an average of 22 bushels. Rye 25 acres, part drilled; part was corn ground manured in the spring—applied 150 lbs. Whitelock. On the balance no fertilizer was used. Oats 10 acres, good. Hay, mowed 117 acres; puts yield at 146 tons.

Jno. D. Matthews—Wheat, Fultz. Estimated yield per acre, 20 bushels. Twenty acres were fallow, twenty-eight corn ground. On the fallow land he applied 200 lbs. of Whitelock's Vegetator per acre, 150 lbs. on the corn land. Hay he puts at an average of 1½ tons on 75 to 80 acres. No rye. Oats put at 25 bushels average per acre—no fertilizer or manure used on them. Where he manured for wheat he noticed a wide difference in favor of the manure.

N. R. Miles—Wheat, Fultz, 7 acres—clover sod; and excellent crop of straw and fair crop of wheat—estimates at 15 bushels per acre. Rye, 7 acres; did not count the dozens; also 2 acres sown for soiling. Oats, a fair crop—16 acres. On part he used Whitelock, which increased the crop very much. Hay, 5 acres—average not over a ton.

S. M. Price—Wheat. On one field, (clover and timothy sod,) he applied 200 lbs. Whitelock; thinks the yield will be satisfactory. Two drill marks left through the entire field showed a very marked difference in favor of the fertilizer. This is the identical field on which he applied a few years ago 600 lbs. of bone per acre. [*Note.* Mr. P. had received no benefit from the use of the bone.] On two drill marks he applied Whitelock at the rate of 400 lbs. per acre; it produced too much straw, and wheat was light. The next field was wheat following wheat; 19 acres, drilled and phosphated with Whitelock's Vegetator, at the rate of 200 lbs. per acre; two drill marks left as a test; not so much wheat there; sown later than the first field; well filled, grain plump; a good crop. The next field was corn ground prepared with the drag and drilled in the opposite direction, or across the dragging; a portion Fultz and a portion Mediterranean; latter best, though it received the larger amount of fertilizer. Shock rows were a failure. Yield put at 15 bushels. No barn-yard manure was used on any of his wheat, except upon a sandy knoll. Rye, 15 acres; some good, some not worth cutting. All was broadcasted with Whitelock's Vegetator. On some of the best ground there was the poorest rye. Oats, 4 acres; looked beautiful, till storm come; no fertilizer. Hay, 75 acres; estimated yield at from 100 to 110 tons. T. G.

Balto. Co., Aug. 28th, 1876.

[*Correction.*—By an oversight in the proof-reader in the Gunpowder Club Report, in the August No., page 266, 12th line from bottom, "superior" should be "inferior;" on page 267, second column, Jno. D. Matthews is made to say the "cost of sowing was $2 per ton," instead of "cost of saving $2 per acre;" and on page 268, 14th line, "manuring" should be "mowing." Also in the committee's report of Mr. Gorsuch's farm, page 268, "Hawley's Granger," should be "Harvey's Granger Cultivator."—*Ed. A. F.*]

The Importance of Good Seed.

At a late meeting of the West Chester, Pa., Experimental Farm Club a communication was received and read from Dr. Ezra Michener, upon planting diseased potatoes, stating that he had selected and planted five tubers badly affected with the fungi disease, and the result was the production of 68 tubers, and 60 out of the 68 were more or less affected by the same disease. Evidently showing if the farmers wish good results from planting, they should secure the very best of seed and free from defect.

At the same meeting a question was asked by one of the club, which is the best kind of wheat to sow? L. Balderson responded, stating as far as his experience went that the Fultz variety had given the best satisfaction. John I. Carter gave the farm experiments with different varieties, on oat stubble and thin soil, as follows: Red Chaff, 16 8-60 bushels per acre; White, 15 28-60; Brittanny, 16 24-60; Week's White, 13 8-60; Jennings, 10 36-60; Herne, 7 52-60; Rogers, 10 16-60; Clawson, 11 8-60; Fultz, 11 44-60; Mercer, 13 32-160; Fultz Hybrid, 13 2-60.

The American Farmer.

PUBLISHED ON THE FIRST OF EVERY MONTH

By SAML. SANDS & SON,

9 *North street, near Baltimore street, Baltimore, Md.*
(*sign of the Golden Plow.*)

SAML. SANDS, WM. B. SANDS, } Editors and Proprietors.

SUBSCRIPTION, $1.50 a year, in advance. To Clubs of five or more, $1.00 each. For $10, eleven copies will be sent.

ADVERTISING RATES.

	1 *Mo.*	3 *Mo.*	6 *Mo.*	1 *Year.*
One Square, 10 lines.....	$ 1.50	$ 4.00	$ 7.00	$ 12.00
Quarter Page.....	6.00	15.00	22.50	35.00
Half Page.....	12.00	25.00	40.00	70.00
One Page.....	20.00	45.00	75.00	120.00

Cover Pages subject to special contract.
Transient Advertisements payable in advance—all others quarterly.
Advertisements should reach us by the 27th of the month, to secure insertion in the succeeding issue.

SEPTEMBER 1, 1876.

"Throw in Your Mite."

We hope all of our friends will act upon the suggestion contained in the above motto offered by a correspondent on another page. In farming, as elsewhere, it is attention to the little things that makes success; neglect of them, failure. So that all who can contribute to the general fund of experience any useful fact, however small, should not hold it back. We welcome all who have anything likely to be of service or interest, to our pages.

Fine Tobacco.

We have had handed us by R. J. Baker, Esq., President of the Piedmont Guano Company, some samples of tobacco grown in Virginia and North Carolina, which, for fineness and beauty, we have scarcely ever seen equalled. They were produced on land to which the company's fertilizer was applied by Messrs. Jno. S. Easley and Willis H. Patterson, of Pittsylvania, Virginia, and Catron Jones and G. W. Manley, of Caswell county, North Carolina.

Farmers' Festival.

It is proposed to hold, on the 8th of September, a basket pic-nic and harvest home of the farmers of Baltimore county, Md., under the auspices of Baltimore County Grange, at Greenwood Park, on the Western Maryland Railroad, near Pikesville. Addresses will be made by a number of gentlemen. A band of music will be in attendance, and a good time generally and a large attendance is expected. The railroad will run special trains, which will be advertised in the daily papers.

The Horticultural Exhibition.

The Annual Show of the Maryland Horticultural Society will take place on the 19th, 20th, 21st and 22d of September, and will occupy the whole of the spacious and elegant Academy of Music, on North Howard street, in this city. The managers intend sparing no trouble or expense to make the display in every department worthy of our State.

They hope to have the aid of the lovers and patrons of horticulture from every portion of Maryland, and an invitation is extended to all who have any horticultural products worthy of public display to contribute them. Fine fruits and vegetables are especially desirable, and as it is expected a large number of strangers will be in attendance, the display of the garden and orchard products of Maryland, if properly made, cannot but have a good effect in illustrating her advantages of soil and climate.

To all our readers in the country we would say that the exhibition will be so imposing and beautiful in its character that it will repay the trouble of a considerable journey to inspect it. The handsome building in which the show is to be held will be lavishly decorated with rare plants and playing fountains, floral temples and rocky grottoes, hanging baskets and cages of song birds; during the afternoon and evening there will be music by popular bands, and the whole direction of the affair will be of such a liberal character as to make the occasion not only one of popular interest, but extremely enjoyable. The public will have a chance, which it has not often had, of late, of seeing the progress taste has made in the direction of horticulture, and we hope all of our readers who can find it convenient to do so will attend. Strangers will be equally welcomed with our own people, and competition in every branch is open to all.

Guaranteed Peruvian Guano.

Our readers will notice the advertisement elsewhere of Messrs. Hobson, Hurtado & Co., the Government agents in New York of Peruvian guano, the composition of which is guaranteed, and the price of which is regulated by the analysis. The following is the valuation adopted in determining the price; the unit being the percentage of each material of fertilizing value in the ton of 2,000 lbs.:

Ammonia will be valued at the rate of $8.50 per unit, or 17½ cts. per lb. Equal to $4.25 per unit o. nitrogen, or 20 cts. per lb.
Soluble phosphoric acid. $2.00 per unit, or 10 cts. per lb.
Reverted phosphoric acid, $1.60 per unit, or 8 cts. per lb.
Insoluble phosphoric acid, 40 cts. per unit, or 2 cts per lb.
Potassa, $1.50 per unit, or 7½ cts. per lb.

The National Agricultural Congress.

We have received from Prof. G. E. Morrow, the secretary, the announcement of the fifth session of this association, which will be held in the Judges' Pavilion, International Exhibition Grounds, on the 12th, 13th and 14th instant.

All agricultural societies, agricultural periodicals, agricultural colleges, boards of agriculture, granges, farmers' clubs, or other organizations whose object is the promotion of agriculture, are invited to send delegates; and all persons desiring to promote the objects for which the Congress is instituted, are earnestly requested to attend and participate in the deliberations.

Believing, says the circular, that the time is come when the agriculture of the United States must be studied and considered as a whole, and by a comparison of the capabilities and conditions of widely separated regions, in order to fully understand in what manner the interests of each and all may be best promoted, we appeal to the agriculturists of every section of the Union, and to all who are working for their welfare, to gather together in this centennial year of our nation's history, and, in the birthplace of American national freedom, to counsel together and to give a new impulse to the agricultural progress of our country.

The programme includes addresses, the reading of papers and discussions on interesting and appropriate topics by delegates. The President of the Congress, Hon. W. C. Flagg, of Illinois, will deliver an address on American Agriculture, and the following named gentlemen on the subjects named: G E. Morrow, of Iowa, on Objects and Work of the National Agricultural Congress; Joseph Harris, of New York, on The Outlook of American Agriculture; J. R. Dodge, of the Department of Agriculture, on Agricultural Statistics; Dr. E. L. Sturtevant, of Massachusetts, on American Agricultural Literature; L. F. Allen, of New York, on American Live Stock Interests; X. A. Willard, of New York, on American Dairying; Alex. Delmar, of Pennsylvania, on The World's Grain Crop of 1876; Alfred Gray, of Kansas, on Our Grain Fields; Col. Thomas Claiborne, of Tennessee, on Our Southern Agriculture; Dr. Thos. P. Janes, Commissioner of Agriculture of Georgia, on Agricultural Reform.

The Belmont Hotel, corner of Forty-first and Oregon streets, and convenient to the Exhibition Grounds, will be the head-quarters of the society, and the place where its evening meetings will be held. Delegates desiring rooms are requested to notify the proprietors in advance.

Delegates from Maryland.

The following gentlemen have been requested to represent Maryland in the Congress:

Hon. Lloyd Lowndes, Jr., Alleghaney; Cornelius Staley, Esq., Frederick; L. A. J. Lamott, Esq, Carroll; A. Bowie Davis, Esq., Montgomery; Wm. B. Hill, Esq., Prince George's; Major Wm. B. Matthews, Charles; George Thomas, Esq., St. Mary's; Genl. Jno. Carroll Walsh, Harford; Genl. L. Giddings, Anne Arundle; J. Howard McHenry, Esq., Baltimore; Edmund Law Rogers, Esq., Baltimore; Wm. Ward, Esq., Cecil; Col. Edward Wilkins, Kent; Col. Jno. R. Emory, Queen Anne's; Genl. E. L. F. Hardcastle, Talbot; L. L. Waters, Esq., Somerset; Geo. Hayward, Worcester; Ezra Whitman, Esq., Pub. *Maryland Farmer;* Wm. B. Sands, Esq., Pub. *American Farmer.*

The Centennial.

The space at our command does not permit us to give extended notices of the varied displays in every branch of the great exhibition connected remotely or directly with agriculture. We would urge, however, upon every one who is so conveniently situated as to be able to do so to visit it. Agricultural Hall we find a world of attractions and wonders, and any farmer can spend not only hours but days in the examination of its varied contents.

We most regret in the exhibition the failure of the Southern States to have complete representative collections of their products,—a default which in the future we fear will inure to their disadvantage. It is very evident that the displays made by the Western States of grains, grasses, fruits, minerals, soils, &c., impress visitors not only of our own country, but those from abroad, and it already begins to look as though one result of this exposition is to be a renewed tide of immigration to the West.

To farmers, horticulturists and others interested in the productions of the earth, in live stock, and in the advancement of agriculture and agricultural education, the present month will be a very desirable time for a visit. The American Pomological Society holds an informal session on the 11th. The National Agricultural Congress assembles on the 12th, 13th and 14th. The live stock displays will be as follows: Horses, September 1st to 14th; dogs, 1st to 8th; neat cattle, September 21st to October 4th; sheep and swine, October 10th to 18th; poultry, October 27th to November 6th.

County Fairs, &c.

The Montgomery County (Md.) Agricultural Society will hold its show on 13th, 14th and 15th September, instant. This is the twenty-third annual show of this society.

The Frederick County (Md.) Agricultural Society will hold its fair at Frederick, 10–13. The shows of this society are always successful.

The Harford County (Md.) Agricultural and Mechanical Society will hold its fair on the same days. This association has had an extremely prosperous career so far.

The Dorchester County Fair will be held at Cambridge, October 20–22.

The Wicomico Society holds its show, at Salisbury, October 11–13.

The Peninsula Agricultural and Pomological Society will hold its fair at Middletown, Del., October 4–6.

The Piedmont Agricultural Society will hold its annual exhibition at Culpeper, October 17–19.

The farmers of Anne Arundel county, Md., have formed an agricultural society, of which Gen. Luther Giddings has been elected president and R. McK. Davis, Esq., secretary. It is in contemplation to hold a fair this fall.

Fertilizers for Fall Use.

The season having arrived for the application of these now indispensable aids to farming, the manufacturers are well represented in our advertising supplement. It is of course proper and natural that none should want to be found missing from the *American Farmer's* list, which this month will be seen to include the following well-known firms and companies: John S. Reese & Co.; R. W. L. Rasin & Co.; Slingluff & Co.; Joshua Horner, Jr. & Co.; R. J. Baker & Co.; Moro Phillips, Piedmont Guano and Manufacturing Co.; Tate, Muller & Co.; The Baltimore Health Department; F. C. Grange & Co.; Wm. Whitelock & Co.; The Maryland Fertilizing Co.; J. M. Rhodes & Co.; P. Zell & Sons; B. M. Rhodes & Co.; P. S. Chappell & Son; J. J. Turner & Co.; G. Ober & Sons; Edward L. Coulson; Jno. Bullock & Son; W. G. Price & Co.; Hobson, Hurtado & Co.; The Chesapeake Guano Co.; Jno. R. Long & Co. In addition to these the People's Gas Co. offer Gas Lime, and Symington Bros. & Co., and the Chemical Co., of Canton, Oil of Vitriol and other chemicals for the home-manufacture of fertilizers.

Turner's "Excelsior."

On our advertising sheet will be found two letters from Virginia, concerning the use in that State of this fertilizer. The house of A. Y. Stokes & Co. is a respected and reliable one, and Mr. Harrison, who certifies to the merits of "Excelsior" Guano, has been long known to us by reputation as a prominent and intelligent farmer of his section.

The Forest Convention of the National Forest Council will be held at Sea Grove, Cape May, N. J., on September 7th and 8th. Mr. W. D. Brackenridge is Vice-President for Maryland.

THE CATALOGUES of Ellwanger & Barry not only illustrate the large variety of stock offered by that firm, but they contain a great amount of well-arranged matter useful to every tree-planter.

The Maryland Agricultural College.

It is not probable that this institution will find patrons among our readers, and the subject is so worn that the space we feel constrained again to give it is accorded only with reluctance.

It will be remembered that, at the recent session of the Legislature of Maryland, the House of Delegates by a very decisive—indeed by an overwhelming vote—not only struck out of the appropriation bills both for 1876 and 1877 the accustomed annual subsidy of $6,000, but likewise refused to give the College a reduced amount.

Notwithstanding this, the usual gratuity is, as we understand, still regularly received by the College from the State Treasury. The payments are made by the State officials, it should seem, on the ground that the charter granted the corporation is in the nature of a contract, and that the State must pay the annual sum stipulated therein even if the Legislature fails to make an appropriation therefor, or, indeed, even if it strikes out the specific item from the appropriation bills. That is, in other words, the rights, privileges and donations conferred by the act of incorporation cannot be affected by indirect legislation; and to withdraw them the charter must be either formally altered or repealed.

This may be correct doctrine—it is not our province to determine. But that the object the Legislature had in view was to stop the misappropriation of public money so egregiously wasted by donations to this institution, cannot be doubted.

That our farmers and taxpayers may see the disposition made of this money; and that our own position in the past concerning this anomalous "college" may be shown to have been fully justified by the facts, we give below an extract from a recently published letter of Mr. N. B. Worthington.

Mr. Worthington had long been employed in the College, and when it became incumbent upon us to publicly show its deviation from the objects of its creation, the maladministration which had obtained in its administration, and its utter uselessness to the State or its agricultural interests, and to recommend our farmers and the Legislature to abstain from its further support, he rushed into print to parry our strictures and defend the management of the institution.

He did not hesitate to assert that the College then compared favorably with its condition at any previous period, that instruction in agriculture was systematically given by "a farmer of long

and valuable experience," that the number of pupils was steadily increasing, and that the naval school boys did not interfere in the least degree "with the general working of the school."

It appears that Mr. Worthington has now been dismissed from his place, and under circumstances, as he claims, of peculiar hardship and indignity. To show to his friends his ungenerous treatment by the Board, and to the public the "degradation" and tendency of the institution, he writes this letter, which either shows a great change in his views, or a great lack of sincerity on his part when himself attached to the school.

With that part which has personal reference to himself we have nothing to do. We reproduce that which refers to this farm school, whose pupils last year numbered *seven from the agricultural community* of Maryland, and *thirty-seven* preparing for the *U. S. Military and Naval Academies*, and which cost the State for that period, *thirteen thousand dollars!* It needs, we think, no comment from us.

WM. T. IGLEHART, ESQ,
Editor Anne Arundel Advertiser:

* * Now what concerns the public to know is, that the board of trustees have in my removal merely executed the will of the president of the college. The circumstances attendant were of too little importance to demand attention. Their action denotes with other things I shall mention, their purpose to lay their own responsibilities on the shoulders of this stranger, whom they confide in, not because they know him but because they do not know him. And this means further, whether Captain Parker wills it or not, the virtual abandonment of the purpose for which the college was instituted and its degradation into a preparatory school for the Navy and Army, whose pupils will be only temporary sojourners of a few weeks or months, with no ambition above "passing" into these academies; and whose teachers are to be occupied in an everlasting round of grammar, spelling, geography and arithmetic, the work of our public common schools.

When Captain Parker was placed a year ago at the head of the college, especial stress had been laid upon giving more importance to its Agricultural Department. In his own absolute want of any knowledge of agriculture, it would be supposed that he would take pains to supplement his own deficiency by the best possible help he could get in that direction. The professorship of agriculture is confessedly hard to fill, but he found very readily a gentleman in Virginia, an ex-army officer of the U. S., and of the C. S. service, not a teacher by a day's experience, and who had made farming a dernier resort. If he himself, a sailor all his life, could take charge of an Agricultural College, why not a soldier teach agriculture. He might, at least, through his old friends of the army, get pupils for West Point as he himself could do for Annapolis. The next attempt to fill an important chair, was the selection of still another ex-navy officer, and if this has failed it was not his fault nor that of the board. If they could have carried out their purpose, on the 16th of June, when they removed the only two Maryland teachers left, the faculty would have consisted of two ex-naval officers and one ex-army officer, holding the three most important positions, and neither of them a teacher by profession, and two younger gentlemen graduates of the Va. Military Institute. All the professors from the State of Virginia, and the president from "the ends of the earth." Giving the President credit for the best intentions, what will be thought of his judgment in making up a corps of instructors for a school of agriculture in Maryland?

Capt. Parker was made president of the college about a year ago. He had come from California the year previous, and was introduced into the college through Gen. Jones, then president. He was no doubt the real author of that famous scheme to establish a "Nautical School" at the college, in which was to be taught "Navigation, Seamanship, Marine Enginery and all matters pertaining to the proper construction, equipment and sailing of vessels," and to which were to be "cordially invited" "Captains and Mates in the Merchant Service wishing to improve themselves," &c. It was under the pressure of the outcry against this scheme that Gen. Jones resigned his presidency, and it was a somewhat strange fortune that he was succeeded by his friend, the real author of it, and for whom it was to furnish occupation. It is noticeable that while the board did not establish that school, several who are now members of this majority who are acting together in the board, did favor it. At the time of his election, Capt. Parker had gathered at Annapolis a school to prepare boys for the Naval Academy. He is by profession a sailor, not a scholar; educated and trained for the navy, he was first in the United States service, then in the Confederate service, and later still, for seven years in the service of the Pacific Mail Steam Ship Company. All the bent of his mind is to "navigation," and when teaching comes as a dernier resource, it takes the same direction. Moreover, the trustees have made it further his interest to foster this school at the college by making his salary contingent on the number of these pupils. He is receiving now a salary seventy-five per cent. greater than that paid Admiral Buchanan. He can afford to stay where he is until a change comes, and then draw off his naval school to other quarters. In the meantime there is ruin to the legitimate purpose of the college and these trustees do not see it. They do not know that last year there were nineteen counties of the State that sent not a student to the college and that the whole agricultural community of Maryland sent but seven, while thirty-seven entered within the year, some for a few weeks, others for a few months, to prepare for the academies. At the end of the year, in the presence of such facts, they seem, as if in defiance and contempt of this public distrust, to hand over the property and revenues of the college deliberately to the uses of such a school as they have made. * * *

Very respectfully,

N. B. WORTHINGTON.

Since the foregoing was in type, we find that Captain Parker, the president of the college, has replied, through the paper in which it appeared, to the letter of Mr. Worthington; and, in fairness, we give the following extract:

"This letter is a tissue of falsehoods. If there is a doubt (which I question) in the mind of any one of the gentlemen of the Board of Trustees as to the propriety of dismissing Mr. Worthington from this institution, I apprehend that the perusal of his letter will remove it.

Should I desire to vindicate my administration, it would, so far as Professor Worthington's attack is concerned, be sufficient to publish his letters written for the Baltimore *Sun* and other papers of the State since last September.

I cannot believe, however, that the public will attach any importance to the statements of a man who, after cordially supporting a certain policy, only condemns it when he himself is found incompetent to discharge the duties of his office. * * * W. H. PARKER.

Condition of the Cotton Crop.

The August statistical returns to the Department of Agriculture show an improvement in the cotton crop during July, bringing its general condition nearly up to the full average. Usually there is a decline from the July figures. South Carolina, Georgia, Alabama, Texas, Arkansas and Tennessee. Louisiana maintains her July average. North Carolina, Florida and Mississippi have declined. Local drought and excessive rains have injured the plants, especially in the eastern counties and along the Mississippi. Caterpillars have made their appearance at numerous points, but at the date of the returns they had done but little damage. Considerable apprehension is expressed of injuries in August, but preparations are being made to resist them. The average condition of the cotton States is as follows: North Carolina 96, South Carolina 97, Georgia 104, Florida 89, Alabama 103, Mississippi 92, Louisiana 89, Texas 106, Arkansas 98, Tennessee 120.

To Destroy the Rose Slug.

A correspondent of the *Gardener's Monthly* recommends the following: Dissolve one tablespoonful of powdered white hellebore in two gallons of boiling water. When cool enough to use, apply to the roses with a whisk broom, bending the tops of the plants over, so as to reach the under as well as the upper side of the leaves, dashing the liquid upon the plant in a fine spray. One application is usually sufficient for a season. It is thoroughly effective, cheap, and quickly applied. It is also certain death to the currant slug.

Nurserymen and Florists.

In anticipation of planting time a number of advertisements will be found in our pages of ornamental trees and shrubs, fruits, greenhouse plants, &c. Messrs. W. D. Brackenridge, W. F. Massey & Co., Cromwell & Cogdon, John Cook, R. J. Halliday, John Saul, Ellwanger & Barry, James Vick, are all reliable growers.

Best Breed of Fowls.

In this, as in everything else, differences of opinion are entertained. A correspondent of the *Southern Farmer* alluding to some experiments made by a fancier and publisher remarks, that "the account is shorn of much of its value as a guide for others. I happen to have tried a similar experiment twice. First with plenty of range both in woods and fields, a good house, but with no great amount of care—beyond rigid selection of breeders. In the second instance with limited range, regular feeding and daily attention.

In the first instance the Game, Black Sumatra, stood first as layers, as mothers, as self-helpers, and as table ornaments. Next in order came the Dominiques, the Silver Hamburgs, the light Brahmas, the Black Spanish and last the Dark Brahmas. In the second instance the order was as follows: Brahmas light, Dominiques, Game, Hamburgs, Black Spanish and Dark Brahmas.

In the first experiment I kept the Games, light Brahmas and Dominiques side by side for four years—under the same treatment—and during the fourth year the Games laid a larger number of eggs and raised a greater number of chickens per hen by open count than either of the others. The Dominiques did not lay as many eggs but raised more chickens than the Brahmas. But in weight the egg and chicken of the Brahmas exceeded both. So much for quantity. Now as for quality.

I confess to a weakness for a graceful animal from a woman down to a chicken. "Pretty is as pretty does" is a very comfortable motto for ugly women, but, as I am not any such, I prefer my women and fowls to look handsome as well as to do handsome. And if anybody has any animal to show, more beautiful than a well-bred, highly-fed Game fowl, unless it be a woman or a horse, I should like to know what it is. No other fowl can compare with the Game for beauty while living, and I have yet to see one that can show more good points on the table. And as for taste, a blind man could distinguish between a Game and a Brahma.

But now for the second trial. With less range the Games did well, but nothing like so well as in the first, while the Brahmas came at once to the front the Dominiques retaining a medium as before. In this case, however, the family of Games was different, and part of the falling off was due, I think, to that fact, as I noticed a marked improvement in the three years during which I tried the experiment.

From observation and experiment my conclusion is that for a wide range and little care the Games have no superiors, but for close quarters and hand-feeding my judgment goes with the Light Brahmas."

Short-Horn Sale.

Mr. Geo. W. Bedford, of Kentucky, sold last month the celebrated Stoner herd of Short-horns. The total amount of the sale was $62,800; the bull, 14th Duke of Thorndale, bringing $17,900. The average of 21 bulls was $1,200; of 48 females, $783.22.

[For the American Farmer.]

Centennial Pictures.

BY JANE BOSWELL MOORE BRISTOR.

Near the main entrance, and without the exhibition buildings, is the "Big Tree" of California,—one of the species Sequoia gigantea—that has attracted so much wonder throughout Europe. These trees are said to have been first discovered by the white man in the spring of 1852. Mr. Dowd, a hunter then, saw the celebrated Calaveras group. When he returned to the camp with the story of what he had seen, so unbelieving were the workmen that he had to resort to strategy to get them to visit the place. Since then, nine or ten distinct groups have been found, varying from a hundred to many thousands in a grove, scattered along the Sierra Nevada, from four to seven thousand feet above the sea. This tree stood in Fresno county; was six thousand five hundred feet above the sea; being eighty feet in circumference, or rather twenty-six feet nine inches in diameter at the base, with but a few inches of bark where it was measured. With smooth round trunk, growing straight up, it mounted one hundred feet to the first limb, where the diameter was fourteen feet. The diameter of the limb was nearly six feet; the trunk, straight as an arrow, at a height of two hundred feet, was nine feet across. The whole height was two hundred and seventy-six feet. It has been estimated that there was wood enough in the trunk alone, allowing nothing for waste in splitting, to fence ten thousand acres of land, or make three hundred and seventy-two thousand feet of inch lumber. The tree was solid from the ground, and by counting its annual rings, two thousand two hundred and fifty years old; cotemporary with Alexander the Great, and three hundred and seventy-five years old at the birth of Christ. The tree on exhibition is a section cut ten feet above the ground, sixteen feet long, and twenty feet in diameter. It was hollowed out to a shell of wood, about seven inches thick, with the bark on, split into eight pieces for transportation, set together again, now appearing as if in the woods, one hundred and seventeen men having stood on the floor of the room within. I have described it thus particularly because many visitors come away without seeing it, and to me it was as wonderful as anything I saw.

In the light building of the Agricultural Department is the mammoth grape-vine from Santa Barbara, Cal.,—one of its main branches being fully equal to the main trunk of the Hampton Court vine in England, the most noted of the Old World. The foliage of the American vine, long, covered a space equal to ten thousand square feet, measuring near the ground eighteen inches in diameter and fifty-six inches in circumference; producing seven thousand five hundred clusters, weighing nearly twelve thousand pounds. It is of the variety known as the Mission Grape, of excellent quality, both for table use and wine. It grew in dark sandy loam, with a very solid subsoil of clay, almost impervious to water. Near the spot where the vine grew is another, which also outranks the Hampton one, being now sixteen years old, sixteen inches in diameter, three feet from the ground, having last year furnished nearly ten thousand pounds of grapes from August the fifteenth to January twenty-six. Near the vine is "Old Abe," the "live war-eagle of Wisconsin." This bird, the emblem of our country, followed the fortunes of a regiment in three years service in the field. A Chippewa Indian sold the young eagle, when two months old, to the whites for a bushel of corn. Led by martial music, the Eighth Wisconsin went forth to battle, carrying the eagle under a banner made and presented by the Ladies' Aid Society. The next day, in La Crosse, two hundred dollars was offered for the bird; but the captain replied: "No money can buy him." Later, his value rose to five hundred; and then a valuable farm was offered for him; but the regiment clung to him, resolving he should not be separated from them. In the first battle he showed a great deal of sagacity, flying from his perch and getting on the ground, as low as he could with the men who did so to protect themselves from a heavy artillery fire, and going back to his perch when the men were ordered to advance. His picture and biography have been largely sold in aid of benevolent enterprises.

Close to the Agricultural, Government and Women's Departments, and near Horticultural Hall, the quaint New England Kitchen, of the olden time, and various other centres of interest is Mercer's Grand Southern Restaurant, conspicuously ornamented with trailing or pendant moss. For good cooking, reasonable prices, and prompt attendance, it is said to be unequalled by any on the ground. As loud complaints of extravagant demands, meagre bills of fare, and hours of provoking delay, were made by many visitors, I record personal experience for the benefit of others, having myself thankfully profited by the hints of those who were before me. The German department of the Art Gallery is too full of the Emperor William, "Fritz," the defeat and surrender of the French, for my taste. Exultation over a fallen foe is never indicative of nice sense of honor or refinement of feeling, and, in this case, the insult to the French is very marked. As a Protestant, I could not but wish success to the cause of Germany; but I feel for France, and am by no means prepossessed in favor of the German Emperor, or Crown Prince, any more than by the crafty face of Napoleon. The "Marriage of the Prince of Wales" naturally attracts more attention than any other painting; but next to it is one that will live when princes and baubles are of little moment. It bears the unmistakeable stamp of that higher endowment, compared with which royalty sinks into insignificance—genius. It was loaned by an English gentleman, and represents "The Banqueting Scene in Macbeth," where the ghost of Banquo rises. I shall say nothing more, for I might fill pages with description. If it were possible it should not leave our country without some attempt at engraving or copy. To read Macbeth, to have heard Charlotte Cushman, and to see this painting, is to be able to comprehend, as far as possible, the most matchless of human compositions. In the Annex, Rothermel's "Christian Martyrs," and a "Norwegian Waterfall," marvellously painted,

most interested us. The American display in the Photographic Hall seemed to us very commonplace, and is far surpassed by the British. There is not one of the excellent family groups for which Bogardus is known in photography, and the few of our other first-class American exhibitors have a very indifferent collection. It seems strange that with proverbially cloudy skies our English brethren should achieve superior success; but it is better to admit it, and profit therefrom. A well-preserved mummy of an Egyptian princess at the door of the World's Ticket Office is worth seeing.

CONTENTS OF SEPTEMBER No.

Agricultural Education.....273
Fodder Corn, by Dr. Sturtevant.....275
Red Oats at the South.....275
Clover Culture in the South.....276
Cultivation of Sorghum.....277
Orchard Grass in Virginia.....278
Composting in Fall and Winter.....278
Burning Tobacco Plant-Beds.....278
Wheat Raising in South Carolina.....278
Seeding of Cereals, by D. Lawrence.....279
Winter Oats, by E. Henry.....280
Throw in Your Mite, by Rustic.....280
Rain in August, by J. Fitz.....280
Recipe for Cholera.....280
Our French Letter.....281
Experiments in Setting Milk, by J. I. Carter.283
Philadelphia Gilt-Edged Butter.....283
Spinage, Cultivation of.....284
Improve Your Flock.....284
Cutting and Steaming Food for Cattle.....284
Fattening Cattle.....285
Hints for Calving Time.....286
Hog Cholera, by Prof. Law.....286
Potomac Fruit-Growers' Association.....287
Grape Management and Pruning.....288
Culture of the Quince.....288
A curious freak in Pear Culture, by Col. Ed. Wilkins.....289
The Early Peaches.....289
Ornamental Planting.....289
Treatment of Young Hedges.....290
Pear Blight, John I. Carter.....290
Bedding Plants, by N. F. F.....291
Autumn Work in the Garden.....291
Destroying Insects on Greenhouse Plants, by N. F. F.....292
Floriculture, &c., for September, by W. D. Brackenridge.....293
The McGinnis Harrow.....294
Changing the Situation of Hives.....294
Work for the Month—Wheat; Rye; Meadows; Corn Fodder; Turnips; Making Manure.....295, 296
Vegetable Garden for September.....296
Gunpowder Agricultural Club.....296
The Importance of Good Seed.....297
Editorial Notices.....298, 300, 302
The Horticultural Exhibiton.....298
Guaranteed Peruvian Guano.....298
The National Agricultural Congress.....299
The Centennial—County Fairs, &c.....299
Fertilizers for Fall Use.....300
The Maryland Agricultural College.....300
Condition of Cotton Crop.....302
Best Breed of Fowls.....302
Centennial Pictures.....303

Baltimore Markets—August 31.

The quotations below are Wholesale Prices.

Breadstuffs.—*Flour.*—In fair demand and prices steady. Quotations as follows: Howard St. Super $3.00@3.50; do. Extra common to fair $4.00@4.25; do. good to choice $4.25@5.00; do. Family $6.50@6.75; Ohio and Indiana Super $2.75@3.25; do. Extra $4.00@4.75; do Family $5.25@6.50; City Mills Super, $3.25@3.75; do. standard Extra $4.00@4.50; do Bio brands do. $5.50@6.62; Fancy brands $8.00; Fine flour $2.50. Rye Flour $3.75 @4.25; Corn Meal—Western $2.60@2.75; City Mills $3.00.

Wheat.—Market active and prices firm, with an upward tendency. We quote Southern red, common, 104@108 cents; fair to good 112@118 cents; prime to choice 119@122 cents; amber 123@125 cents.

Corn.—Southern quiet and heavy; Western steady. We quote Southern yellow 52@58 cents; do. white 50@54 cents; Western mixed 54 cents.

Oats.—Quiet and steady, with quotations of Southern at 30@37 cents; Western mixed 30@33 cents; do. bright 35@38 cents.

Rye.—Quiet, with sales at 54½@55 cents for good.

Cotton.—Quiet but steads. We quote good middling 12¼ cents; middling 11¼@11¾ cents; low middling 10¾@10¾ cents; good ordinary 10@10¾ cents; ordinary 9 cents.

Hay and Straw.—Market firm. Cecil Co. Timothy, new, $15@16; Pennsylvania and New York $13@14; mixed $12@14; Clover $12. Straw, Wheat, $7; Rye $13@14; Oat $8@9.

Live Stock.—*Beef Cattle*—Active, with some improvement on best grades. We quote best on sale 4¾@5 cents; generally rated first-class 4¼@4¾ cents; medium or good fair quality 3¾@4 cents; ordinary thin Steers, Oxen and Cows 2¾@3 cents.

Hogs.—Supply about even with demand, and market firm, with quotations at 8¾@9 cents.

Sheep.—Good ones scarce and in demand. Best butcher Sheep 4¼@5 cents; Lambs $1.50@3.00 ₹ head; stock Sheep $2.50@3.00 ₹ head.

Provisions.—Bulk Shoulders 7¼ cents. clear-rib Sides 9¼ cents; Bacon Shoulders 7¾ cents; clear-rib Sides 9¾@10 cents; Hams 15@16 cents; Lard 12 cents. Mess Pork $18.75@19. *Butter.*—Western 18@23 cents. Nearby 14@15 cents. *Cheese.*—Eastern 9¾@10 cents. Western 8¾@9¼.

Seeds.—Timothy $2.40@2.50; Clover $8.50; Blue Grass $1.75@2.00; Red Top $1; Orchard Grass $3 ₹ bu.

Tobacco.—Prices steady. We quote Maryland frosted $3@4; common to good sound $4.50@7.50; middling to fine $8.00@12.00; fancy 13.00@18.00.

Wool.—Tub-washed 31@36 cents; unwashed 24@26 cents; fleece washed 28@33.

NEW ADVERTISEMENTS.

R. W. L. Rasin & Co.—Soluble Sea Island Guano for Wheat.
Philadelphia, Wilmington and Baltimore Railroad Company.—Centennial Excursions.
Francis Morris—Improved Live Stock.
Hugh Bolton & Co.—Glass, Oils, Paints, &c.
Chas. P. & F. P. Sievens.—Belmont Hotel.
G. F. Needham—Levy Peach Buds.
Chesapeake Guano Co.—Chesapeake Guano.
John R. Long & Co.—High Grade Dissolved Bone.
F. C. Grange & Co.—Grange's Super Phosphate.
F. C. Grange & Co.—St. Louis Bone Meal.
F. C. Grange & Co.—For Wheat and other Grain.
F. C. Grange & Co.—Materials for Making Super-Phosphate.
F. J. Sage—Vinegar Recipe.
Jas. Vick—Bulbs for Fall Planting.
Patrons' and Sovereigns Publishing Co.—Books, Periodicals, &c.
Ellwanger & Barry.—Fruit and Ornamental Trees.
L. J. Miller—Nonpareil Farm Mills.
C. L.—Doe for Sale.
John Saul—Fruit and Ornamental Trees, Bulbs, &c.
T. W. Levering & Sons—Seed-Wheat, Grass Seeds, &c.
Wm. Mann—Clocks, Looking-Glasses, &c.
Griffith & Turner—Hagerstown Wheat Drill, Implements, &c.
Jno. Cook—Strawberry and other Plants for Sale.
Hobson, Hurtado & Co.—Peruvian Guano Guaranteed.
W. F. Massey & Co.—Chesnut Hill Nurseries.
Maryland Horticultural Society—Annual Exhibition.
J. W. Wilson & Son.—Lumber, Mill Work, &c.
Joshua Thomas.—Watt Plow, Cucumber Pumps, &c.